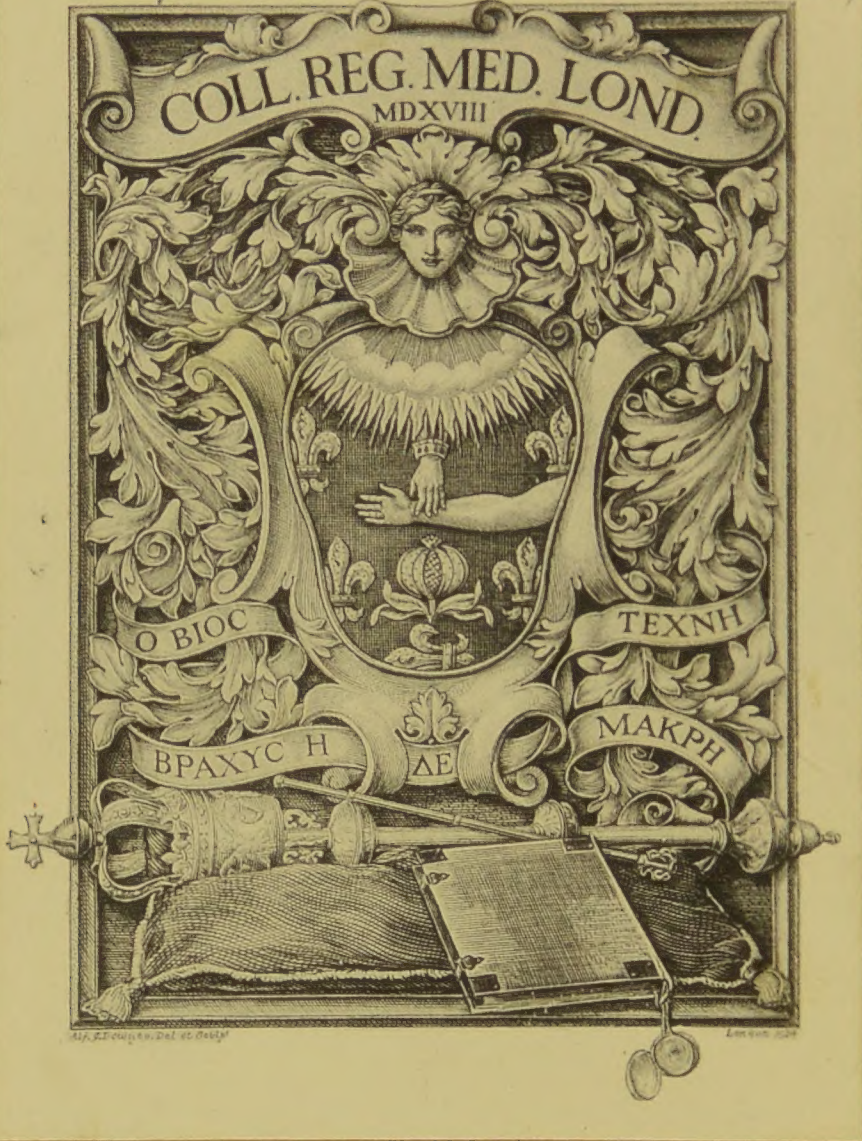


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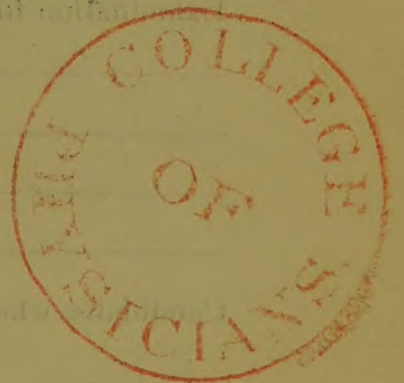
UNIVERSITY OF LONDON.

EXAMINATION

FOR

M A T R I C U L A T I O N

IN THE YEAR 1841.



LONDON:

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EXAMINERS.

In Classics.

Rev. Dr. JERRARD.

T. B. BURCHAM, Esq., M.A.

In Mathematics and Natural Philosophy.

GEORGE B. JERRARD, Esq., B.A.

Rev. ROBERT MURPHY, M.A.

In Chemistry.

Professor DANIELL, F.R.S.

In Botany.

Rev. Professor HENSLOW, M.A.

In Zoology.

P. M. ROGET, M.D., Sec. R.S.

EXHIBITIONERS, &c.

MATHEMATICS AND NATURAL PHILOSOPHY.

1838. { CHARLES JAMES HARGREAVE University College.
 { C. SARGENT King's College.
1839. ISAAC TODHUNTER University College.
1840. WILLIAM DAVISON University College.
1841. JOSEPH ANTHONY SPENCER University College.

CHEMISTRY.

1841. No Candidate.

BOTANY.

1841. No Candidate.

ZOOLOGY.

1841. JOSEPH ASH BAYNES Stepney College.

CLASSICS.

1838. { FREDERICK JAMES MANNING King's College.
 { CHARLES PETER MASON University College.
1839. { BARROW HELBERT ELLIS University College.
 { GEORGE DAVID JONES King's College.
 { JOHN PHILIP MARTINEAU University College.
1840. TIMOTHY SMITH OSLER Bristol College.
1841. BUNNELL LEWIS University College.

PASS EXAMINATION.

MONDAY, October 4.—MORNING, 10 to 1.

ARITHMETIC AND ALGEBRA.

Examiner, Mr. JERRARD.

1. WHAT is a decimal fraction? Show how to multiply, and to divide, 6·012 by ·00345.

2. Find the simple interest of £3757 for $5\frac{1}{2}$ years at $3\frac{1}{2}$ per cent. per annum.

3. If seven oxen eat an acre of grass in six days, how long will it take seventeen oxen to eat thirty-four acres?

4. Extract the square root of 4498641, and that of ·04498641.

5. Multiply $x + y$ by $x - y$, and give an interpretation of the result. Also expand

$$(x + y)^3, \text{ and } (1 + x)(1 - x - 3x^2 + 4x^3).$$

6. Compare the process of division in arithmetic with that in algebra. Divide

$x^4 - 10x^3 + 35x^2 - 50x + 24$ by $x^2 - 5x + 4$, and $21x^3 + x^2y - 28x^2z - 53xyz - 10xy^2 + 22y^2z + 44yz^2$ by $7x^2 + 5xy - 11yz$.

7. Show that if $\frac{a}{b} = \frac{c}{d}$, then $\frac{a+b}{a-b} = \frac{c+d}{c-d}$. Also show

that if a be less than b , the fraction $\frac{a}{b}$ will be less than $\frac{a+x}{b+x}$ when x is any positive quantity.

8. Find the sum of n terms of the series

$$a + ar + ar^2 + ar^3 + \dots,$$

and insert eleven arithmetic means between 7 and 151.

9. Solve the equations

$$(1.) \quad 3 - (2x - 52) = 44 - x,$$

$$(2.) \quad \frac{x}{2} - \frac{x}{4} = 23 + \frac{x}{5} - \frac{x}{3},$$

$$(3.) \quad \frac{x+1}{2} - \frac{3x-1}{7} = \frac{7x-11}{4},$$

$$(4.) \quad \left. \begin{aligned} 10x + 14y &= 19 \\ 102x - 66y &= 29 \end{aligned} \right\}.$$

What is the meaning of such equations as

$$(5.) \quad 59 + x = 25$$

$$(6.) \quad \frac{2}{x^2 - 1} = \frac{1}{x - 1} - \frac{1}{x + 1}?$$

10. A hare fifty leaps in advance of a greyhound, and taking three leaps for every two of the latter, is overtaken in 300 leaps of the greyhound: what is the proportion between the lengths of the leaps?

11. Every whole number may be reduced to the form

$$a_n r^n + a_{n-1} r^{n-1} + a_{n-2} r^{n-2} + \dots + a_1 r^1 + a_0,$$

in which r may be any integer whatever, and a_n, a_{n-1}, \dots, a_0 are integers, including zero, less than r .

MONDAY, October 4.—AFTERNOON, 3 to 6.

ENGLISH HISTORY.

Examiner, Rev. Dr. JERRARD.

1. What are the earliest notices of Britain which occur in Greek authors? By whom was this Island first peopled? On what pretence was it invaded by Julius Cæsar? How long did the Romans remain masters of the greater part of it? About what time was Christianity first introduced into it?

2. Give some account of the Anglo-Saxon form of government. How do you account for the despotic nature of the government of the Anglo-Norman kings?

3. "The great Charter had laid the foundation of this valuable part of liberty (security from arbitrary imprisonment); the petition of right had renewed and extended it; but some provisions were still wanting to render it complete."—*Hume*. By what act, and in what year, was this important object fully effected? Explain the principal provisions of the Magna Charta, and the Petition of Right.

4. What was the origin of the wars between the Houses of York and Lancaster? How long did they continue, and with what event did they terminate? Give some idea of the sufferings they brought upon the English people. What effect had they upon the prerogative of the Crown?

5. Give some account of the state of Commerce in England during the reigns of the Anglo-Norman kings. How do you account for its great extension in the reign of Henry VII.; and for its depressed condition in that of Mary? What caused it greatly to increase after the Restoration? To which of the kings has the title of Father of English Commerce

been applied, and for what reason? When was the East India Company established?

6. On what occasion did Henry VIII. obtain the title of Defender of the Faith? What inducements had he, at a later period of his life, to break off his connexion with the Court of Rome? What circumstances led to his final breach with the Pope? How may his hatred of the Protestants be accounted for? By what enactments did the Parliament add to the great authority already possessed by him? What was his pretext for suppressing the Monasteries? How were the revenues of those Institutions disposed of by him? What were his motives for procuring the trial and execution of Sir Thomas More? Give the character of that remarkable man.

7. Give a sketch of the principal events which took place in the reign of Edward VI.

8. When and by whom was the practice of Toleration introduced into England? By what eminent Minister of Mary were the rights of Conscience advocated, though without success? Give a sketch of the arguments employed by him. Give a short account of the persecutions, for religious opinions, which took place in the reign of Mary; and also in that of Elizabeth.

9. What peculiar difficulties had Mary Queen of Scots to encounter at the commencement of her reign? How do you account for the popularity which she gradually acquired; and for the sudden change which afterwards took place in the sentiments of her subjects towards her? On what pretext was she detained a prisoner in England by Elizabeth? On what grounds was she subsequently brought to trial and executed?

10. What was the state of France and of the Netherlands during the reign of Elizabeth? How far did she take part in the affairs of these Countries? By what motives does Philip of Spain appear to have been instigated in his attempt to crush the power of England? Give a short description of the Armada; of the preparations made by the English to resist it; and of the way in which it was defeated.

What symptoms of an independent spirit were evinced by the Parliament in this reign; and how were they repressed?

11. Can the execution of Charles I. be regarded as the act of the majority of the people of England? State your reasons in support of your opinion. In what light was this act regarded by the nations of Europe generally?

12. When was Cromwell appointed Protector? What was the nature of his domestic administration? Give the character of Barebone's Parliament. What was their opinion of Learning and Universities—also of the Common Law? Was the liberty of the press in any degree promoted during the period of the Commonwealth? When were the restraints upon the press removed?

13. By what proceedings did James II. disgust the great body of his English subjects? What was the immediate occasion of his flight?

14. What arguments were used in Parliament in favour of appointing the Prince of Orange Regent? What, in favour of appointing him King? What was the *foundation* of the reasonings of the Whigs in support of the latter plan? State the provisions of the Act of Settlement.

TUESDAY, October 5.—MORNING, 10 to 1.

GREEK CLASSIC AND HISTORY

Examiner, Rev. Dr. JERRARD.

XENOPHON*, CΥΡΟΡΑΕΔΙΑ, Book I.

(Δ.) "Ὅτε μὲν δὴ ταῦτα ἐνεθυμούμεθα, οὕτως ἐγιγνώσκομεν περὶ αὐτῶν, ὡς ἀνθρώπων πεφυκότι πάντων τῶν ἄλλων ζώων εἶη

* Edit. Dindorf.

ῥῆον, ἢ ἀνθρώπων, ἄρχειν. Ἐπειδὴ δὲ ἐνενοήσαμεν, ὅτι Κύρος ἐγένετο Πέρσης, ὡς παμπόλλους μὲν ἀνθρώπους ἐκτήσατο πειθομένους αὐτῷ, παμπόλλας δὲ πόλεις, πάμπολλα δὲ ἔθνη, ἐκ τούτου δὴ ἠναγκαζόμεθα μετανοεῖν, μὴ οὔτε τῶν ἀδυνάτων οὔτε τῶν χαλεπῶν ἔργων εἶναι τὸ ἀνθρώπων ἄρχειν, ἢν τις ἐπισταμένως τοῦτο πράττη. Κύρω γοῦν ἴσμεν ἔθελλήσαντας πείθεσθαι, τοὺς μὲν ἀπέχοντας παμπόλλων ἡμερῶν ὁδόν, τοὺς δὲ καὶ μηνῶν, τοὺς δὲ οὐδ' ἑωρακότας πώποτε αὐτόν, τοὺς δὲ καὶ εὖ εἰδότας, ὅτι οὐδ' ἂν ἴδοιεν· καὶ ὅμως ἠθέλον αὐτῷ ὑπακούειν. Καὶ γάρ τοι τοσοῦτον διήνεγκε τῶν ἄλλων βασιλέων, καὶ τῶν πατρίους ἀρχὰς παρειληφότων, καὶ τῶν δι' ἑαυτῶν κτησαμένων, ὥστε ὁ μὲν Σκύθης, καίπερ παμπόλλων ὄντων Σκυθῶν, ἄλλου μὲν οὐδενὸς δύναιτ' ἂν ἔθλους ἐπάρξαι, ἀγαπῶν δ' ἂν, εἰ τοῦ ἑαυτοῦ ἔθλους ἀρχῶν διαγένοιτο· καὶ ὁ Θραξ Θρακῶν, καὶ ὁ Ἰλλυριὸς Ἰλλυριῶν· καὶ τὰλλα δὲ ὡσαύτως ἔθνη ἀκουομεν· τὰ γοῦν ἐν τῇ Εὐρώπῃ ἔτι καὶ νῦν αὐτόνομα εἶναι λέγεται, καὶ λελῦσθαι ἀπ' ἀλλήλων· Κύρος δὲ, παραλαβὼν ὡσαύτως οὕτω καὶ τὰ ἐν τῇ Ἀσίᾳ ἔθνη αὐτόνομα ὄντα, ὀρμηθεὶς σὺν ὀλίγῃ Περσῶν στρατιᾷ, ἐκόντων μὲν ἠγήσατο Μήδων, ἐκόντων δὲ Ἵρκανίων· κατεστρέψατο δὲ Σύρους, Ἀσσυρίους, Ἀραβας, Καππαδόκας, Φρύγας ἀμφοτέρους, Λυδοὺς, Κᾶρας, Φοίνικας, Βαβυλωνίους· ἠρξε δὲ καὶ Βακτριῶν καὶ Ἰνδῶν, καὶ Κιλικῶν· ὡσαύτως δὲ Σακῶν καὶ Παφλαγόνων, καὶ Μαρνανδυνῶν, καὶ ἄλλων δὲ παμπόλλων ἔθνῶν, ὧν οὐδ' ἂν τὰ ὀνόματα ἔχοι τις εἰπεῖν. Ἐπῆρξε δὲ καὶ Ἑλλήνων τῶν ἐν τῇ Ἀσίᾳ, καταβὰς δὲ ἐπὶ θάλατταν, καὶ Κυπρίων καὶ Αἰγυπτίων.

(B.) Πλέον δ' ἔχειν, ὦ πάτερ, πολεμίων πῶς ἂν τις δύναιτο μάλιστα; Οὐ μὰ Δί', ἔφη, οὐκέτι τοῦτο φαῦλον, ὦ παῖ, οὐδ' ἀπλοῦν ἔργον ἐρωτᾷς· ἀλλ' εὖ ἴσθι, ὅτι δεῖ τὸν μέλλοντα τοῦτο ποιήσειν, καὶ ἐπίβουλον εἶναι, καὶ κρυψίνου, καὶ δολερὸν, καὶ ἀπατεῶνα, καὶ κλέπτην, καὶ ἄρπαγα, καὶ ἐν παντὶ πλεονέκτην τῶν πολεμίων. Καὶ ὁ Κύρος ἐπιγελάσας εἶπεν, ὦ Ἡράκλει, οἷον σὺ λέγεις, ὦ πάτερ, δεῖν ἄνδρα με γενέσθαι. Οἷος ἂν, ἔφη, ὦ παῖ, δικαιοτάτος τε καὶ νομιμώτατος ἀνὴρ εἴης. Πῶς μὴν, ἔφη, παῖδας ὄντας ἡμᾶς καὶ ἐφήβους τάναντία τούτων ἐδιδάσκετε; Ναὶ μὰ Δί', ἔφη, καὶ νῦν γε, πρὸς τοὺς φίλους τε καὶ πρὸς τοὺς πολίτας· ὅπως δέ γε τοὺς πολεμίους δύναισθε κακῶς

ποιεῖν, οὐκ οἶσθα μανθάνοντας ὑμᾶς πολλὰς κακουργίας; Οὐ δὴτ' ἔγωγ', ἔφη, ὦ πάτερ.

(C.) Εἰ δὲ σύ γε, ἔφη, ὦ παῖ, μηδὲν ἄλλο ἢ μετενέγκοις ἐπ' ἀνθρώπους τὰς μηχανὰς, ἃς καὶ ἐπὶ τοῖς πάνυ μικροῖς θηρίοις ἐμηχανῶ, οὐκ οἶει ἂν, ἔφη, πρόσω πάνυ ἐλάσαι τῆς πρὸς τοὺς πολεμίους πλεονεξίας; Σὺ μὲν γὰρ ἐπὶ τὰς ὄρνιθας ἐν τῷ ἰσχυροτάτῳ χειμῶνι ἀνιστάμενος, ἐπορεύου νυκτός· καὶ πρὶν κινεῖσθαι τὰς ὄρνιθας ἐπεπήγηντό σοι ἐπὶ τούτῳ αἱ πάγαι αὐταῖς, καὶ τὸ κεκινημένον χωρίον ἐξείκαστο τῷ ἀκινήτῳ. ὄρνιθες δὲ ἐπεπαίδευντό σοι, ὥστε σοὶ μὲν τὰ συμφέροντα ὑπηρετεῖν, τὰς δὲ ὁμοφύλους ὄρνιθας ἐξαπατᾶν· αὐτὸς δὲ ἐνήδρευες, ὥστε ὄρνῃ μὲν αὐτὰς, μὴ ὄρᾶσθαι δὲ ὑπ' αὐτῶν· ἡσκήσεις δὲ φθάνειν ἔλκων, ἢ τὰ πτηνὰ φυγεῖν. Πρὸς δ' αὖ τὸν λαγῶν, ὅτι μὲν ἐν σκότει νέμεται, τὴν δ' ἡμέραν ἀποδιδράσκει, κύνας ἔτρεφες, αἱ τῇ ὁσμῇ αὐτὸν ἀνεύρισκον. "Ὅτι δὲ ταχὺ ἔφευγεν, ἐπεὶ εὐρεθείη, ἄλλας κύνας εἶχες ἐπιτετηδευμένας πρὸς τὸ κατὰ πόδας αἰρεῖν. Εἰ δὲ καὶ ταύτας ἀποφύγοι, τοὺς πόρους αὐτῶν ἐκμανθάνων, καὶ πρὸς οἷα χωρία φεύγειν αἰροῦνται οἱ λαγῶν ἐν τούτοις τὰ δίκτυα δυσόρατα ἐνεπετάννυες, ἵνα ἐν τῷ σφόδρα φεύγειν αὐτὸς ἑαυτὸν ἐμπίπτων ἐνέδῃ. Τοῦ δὲ μηδ' ἐντεῦθεν διαφεύγειν, σκοποὺς τοῦ γιγνομένου καθίστης, οἱ ἐγγύθεν ταχὺ ἔμελλον ἐπιγενήσεσθαι· καὶ αὐτὸς μὲν σὺ ὀπισθεν κραυγῇ οὐδὲν ὑστεριζούσῃ τοῦ λαγῶ βοῶν, ἐξέπληττες αὐτὸν, ὥστε ἀφρόνως ἀλίσκεσθαι τοὺς δὲ ἔμπροσθεν σιγᾶν διδάξας ἐνεδρεύοντας, λανθάνειν ἐποίεις. "Ὡσπερ οὖν προεῖπον, εἰ τοιαῦτα ἐθελήσῃς καὶ ἐπὶ τοὺς ἀνθρώπους μηχανᾶσθαι, οὐκ οἶδ' ἔγωγε, εἴ τινα λίποις ἂν τῶν πολεμίων.

1. Translate the following passage and correct the errors in it; stating the reasons for each change.

Ἐν δὲ τούτῳ με ἔπαισεν ὁ διδάσκαλος, λέγων, ὅτι, ὀπότε μὲν κατασταθείην τοῦ ἀρμόττοντος κριτῆς, οὕτω δεῖ ποιεῖν ὀπότε δὲ κρῖναι δέοι, ὀποτέρου ὁ χιτῶν ἐστὶ, τοῦτ' ἔφη σκεπτέον εἶναι, τίς κτήσις δικαία ἐστὶ· πότερα τὸν βία ἀφελόμενον ἔχειν, ἢ τὸν ποιησάμενον ἢ πριάμενον κεκτήσθαι.

2. What objects does Xenophon appear to have had in view in composing the *Cyropædia*? Translate what Cicero

says of this work, that it is written “non ad historiæ fidem sed ad effigiem justi imperii.” Does this description remind you of any celebrated modern work? In what material points is Xenophon’s narrative at variance with what we learn of Cyrus from other sources? Who were Cyrus’ successors on the throne; and how long did the Persian Empire last?

3. Give a sketch of Xenophon’s life; and mention the principal events which took place at Athens in his time. What English writers appear to you most to resemble him in the peculiar excellences of his style? Point out the advantages and disadvantages of the system of education which he describes as existing among the Persians.

4. Explain the constructions—*πρόσω ἐλάσαι τῆς πλεονεξίας—ἡσκήκεις φθάνειν ἔλκων, κ.τ.λ. ἵνα... συνέδει—Ὅτις ἂν εἴης—ὡς ἀνθρώπῳ πεφύκότι.* What is the force of *ἂν* after *ἐνεπετάναντες*? Why are optatives used with *εἰ* and *ἂν* in the last sentence of (C.) extract?

5. *Ὅιστα μανθάνοντας.* What classes of verbs are followed, in Greek, by the participle instead of the infinitive? Is this construction ever imitated by Latin authors?

6. What is the exact force of the particle *μέν*? Is the shade of meaning which it expresses *ever* correctly denoted in English by such words as “indeed” or “truly”? What are the precise meanings of *δὴ*, *δήπου*, *δήτα*, *γε*, *γούν*, and *τοι*?

7. Draw a map including the countries mentioned in the extract (A.) as having been conquered by Cyrus.

TUESDAY, October 5.—AFTERNOON, 3 to 6.

CHEMISTRY. NATURAL HISTORY.

CHEMISTRY.

Examiner, Professor DANIELL.

1. What are the Chemical Elements which may be derived from the Atmosphere? In what state, and in what proportions, do they enter into its Constitution?
2. How is Chemical Affinity distinguished from other forces which act upon matter? and what are the Laws of Chemical Composition? Illustrate them by examples.
3. What is Fire? What becomes of a body which is burnt?
4. What is meant by a degree of temperature upon Fahrenheit's scale?
5. What are the principal characteristic properties of the Metals? Mention the equivalents of any six upon the hydrogen-scale, and the equivalents of their oxides.

BOTANY.

Examiner, Professor HENSLOW.

CHARACTERS OF THE PRINCIPAL NATURAL
FAMILIES OF EUROPEAN PLANTS.

State the principal characters of

1. Cruciferae.

2. Rhamnaceæ.

3. Alismaceæ.

Give the chief points of resemblance and difference in

4. Primulaceæ and Gentianaceæ.

5. Rosaceæ and Saxifragaceæ.

To what Orders do you refer plants possessing the following characters ?

6. *Flos* hermaphroditus, irregularis.

Calyx monosepalus, inferior.

Corolla monopetala, hypogyna, bilabiata.

Stamina didynama.

Ovarium 4-partitum, ex carpellis binis 2-partitis constans, loculis uniovulatis.

Stylus filiformis centralis.

Stigma bifidum.

Fructus: nuces quatuor, calyce persistente inclusæ.

7. *Flores* unisexuales spadici inserti, spathâ inclusi.

Perianthium nullum.

Stamina indefinita.

Ovarium superius, uniloculatum, multiovulatum.

Fructus succulentus.

NATURAL HISTORY:

Examiner, Dr. ROGET.

1. Enumerate the principal Varieties of the Human Race; and describe the characteristic features of each.

2. By what characters are venomous Serpents distinguished from those which are innocuous ?

3. Specify the genera of Vertebrate Animals which are furnished with sucking discs; and explain the physical principles on which the action of those organs depends.

4. Give the Latin generic and specific names of the under-

mentioned animals; specify the Class, Order, and Natural Family of each in the system of Cuvier; and describe some of the leading particulars of their natural history.

Spermaceti Whale.	Flying Opossum.
Great Anteater.	Siren.
Lamprey.	Common Badger.
Common Bat.	Tapir.
Cassowary.	Great Water Newt.

5. By what general character are Turbinated Shells appertaining to Carnivorous Mollusca distinguished from those which appertain to Herbivorous Mollusca?

WEDNESDAY, October 6.—MORNING, 10 to 1.

GEOMETRY AND SIMPLE EQUATIONS.

Examiner, REV. R. MURPHY.

1. When two triangles have two sides of the one respectively equal to two sides of the other, and the included angles also equal to each other, the third or remaining sides shall also be equal, and the angles, viz. those opposite to equal sides, shall also be equal, and the whole triangles shall be equal one to the other.

2. To bisect a given rectilinear angle.

3. Prove that any side of a triangle is less than the sum of the other two, and that any side of a quadrilateral is less than the sum of the other three sides. Extend a similar law to multi-sided rectilinear figures in general.

4. When a straight line falling on two other straight lines makes the external angle equal to the internal and opposite angle, these two straight lines are parallel.

5. Straight lines, parallel to the same straight line, are parallel to each other.

6. The square described on that side of a right-angled triangle, which is opposed to the right angle, is equal to the sum of the squares described on the sides which contain it.

7. *Problem.*—Bisect a triangle by a straight line drawn through a given point in one of its sides.

8. Solve the following simple equations :

$$(1.) \frac{3x}{16} - 99\frac{3}{4} = 0.$$

$$(2.) \frac{x}{5} + \frac{x}{6} - \frac{x}{3} = 1 + \frac{x}{2} - \frac{x}{8} - \frac{x}{10} - \frac{x}{4}.$$

$$(3.) \frac{187 + x}{x - 37} = \frac{3x - 9}{3x - 121}.$$

$$(4.) \frac{x}{a} + \frac{x + b}{a + b} + \frac{x + c}{a + c} = 3.$$

$$(5.) \begin{cases} x + y = s. \\ x - y = d. \end{cases}$$

$$(6.) \begin{cases} 3x + 5y = 370. \\ 5x + 3y = 590. \end{cases}$$

9. *Problem.*—Ten years since, the ages of A and B together exceeded four times C's age by six years, but in ten years hence that sum will only exceed three times C's age by three years; when C was born A was exactly three times the age of B,—what are their present ages?

WEDNESDAY, October 6.—AFTERNOON, 3 to 6.

NATURAL PHILOSOPHY.

Examiners, Mr. JERRARD and Rev. R. MURPHY.

1. Explain the composition of two forces acting upon a point, and illustrate your result by ordinary examples.
2. Mention the simple machines, and state the ratio of the power to the weight in the screw.
3. Define the centre of gravity.
4. How may the true weight of a body be ascertained by weighing it in each scale of a false balance the arms of which are unequal in length?
5. Define velocity, and show that the construction for the composition of forces also applies to that of velocities.
6. State the General Laws of Motion, and describe the chief experiments by which they may be illustrated.
7. Explain the action of the Siphon, and the construction of the Air-pump.
8. Give an explanation of the relation between the pressure of fluids and the depth, mentioning some of the important applications of the principle.
9. How is sound propagated? What is its velocity in air? How is the velocity affected by temperature? Explain the production of echoes.
10. What are the laws of the Reflection and Refraction of a ray of light?

FRIDAY, October 8.—MORNING, 10 to 1.

ROMAN CLASSIC AND HISTORY.

Examiner, Mr. BURCHAM.

VIRGIL*, GEORGICS, Book I.

Translate :

- (A.) Quid dicam, jacto qui semine comminus arva
 Insequitur, cumulosque ruit male pinguis arenæ?
 Deinde satis fluvium inducit rivosque sequentis?
 Et, quum exustus ager morientibus æstuat herbis,
 Ecce supercilio clivosi tramitis undam
 Elicit? illa cadens raucum per levia murmur
 Saxa ciet, scatebrisque arentia temperat arva.
 Quid, qui, ne gravidis procumbat culmus aristis,
 Luxuriam segetum tenera depascit in herba,
 Quum primum sulcos æquant sata? quique paludis
 Conlectum humorem bibula deducit arēna?
 Præsertim incertis si mensibus amnis abundans
 Exit, et obducto late tenet omnia limo:
 Unde cavæ trepido sudant humore lacunæ.
- (B.) Ille malum virus serpentibus addidit atris,
 Prædarique lupos jussit, pontumque moveri;
 Mellaque decussit foliis, ignemque removit,
 Et passim rivis currentia vina repressit:
 Ut varias usus meditando extunderet artis
 Paullatim, et sulcis frumenti quæreret herbam;
 Ut silicis venis abstrusum excuderet ignem.
 Tunc alnos primum fluvii sensere cavatas;
 Navita tum stellis numeros et nomina fecit,
 Pleiadas, Hyadas, claramque Lycaonis Arcton.

* Edit.

Tum laqueis captare feras, et fallere visco,
 Inventum, et magnos canibus circumdare saltus.
 Atque alius latum funda jam verberat amnem;
 Alta petens pelagoque alius trahit humida lina.
 Tum ferri rigor, atque argutæ lamina serræ,
 (Nam primi cuneis scindebant fissile lignum)
 Tum variæ venere artes: labor omnia vicit
 Inprobus et duris urguens in rebus egestas.
 Prima Ceres ferro mortalis vertere terram
 Instituit: quum jam glandes atque arbuta sacræ
 Deficerent silvæ, et victum Dodona negaret.
 Mox et frumentis labor redditus: ut mala culmos
 Esset robigo, segnisque horreret in arvis
 Carduus: intereunt segetes; subit aspera silva,
 Lappæque tribulique; interque nitentia culta
 Infelix lolium et steriles dominantur avenæ.

- (C.) Nec frustra signorum obitus speculamur et ortus,
 Temporibusque parem diversis quatuor annum.
 Frigidus agricolam si quando continet imber:
 Multa, forent quæ mox cælo properanda sereno,
 Maturare datur; durum procudit arator
 Vomeris obtusi dentem; cavat arbore lintres;
 Aut pecori signum aut numeros inpressit acervis.
 Exacuunt alii vallos furcasque bicornis,
 Atque Amerina parant lentæ retinacula viti.
 Nunc facilis rubea texatur fiscina virga;
 Nunc torrete igni fruges, nunc frangite saxo.
 Quippe etiam festis quædam exercere diebus
 Fas et jura sinunt: rivos deducere nulla
 Religio vetuit, segeti prætere sæpem,
 Insidias avibus moliri, incendere vepres,
 Balantumque gregem fluvio mersare salubri.
 Sæpe oleo tardi costas agitator aselli
 Vilibus aut onerat pomis; lapidemque revertens
 Incusum, aut atræ massam picis, urbe reportat.

- (D.) Quoties Cyclopum effervere in agros
 Vidimus undantem ruptis fornacibus Ætnam,

Flammarumque globos liquefactaque volvere saxa!
 Armorum sonitum toto Germania cœlo
 Audiit; insolitis tremuerunt motibus Alpes.
 Vox quoque per lucos volgo exaudita silentis
 Ingens; et simulacra modis pallentia miris
 Visa sub obscurum noctis; pecudesque loquutæ;
 Infandum! sistunt amnes, terræque dehiscunt.
 Et mæstum inlacrimat templis ebur, æraque sudant.
 Proluit insano contorquens vertice silvas
 Fluviorum rex Eridanus, camposque per omnis
 Cum stabulis armenta tulit. Nec tempore eodem
 Tristibus aut extis fibræ adparere minaces,
 Aut puteis manare cruor cessavit; et altæ
 Per noctem resonare, lupis ululantibus, urbes.
 Non alias cœlo ceciderunt plura sereno
 Fulgura; nec diri toties arsere cometæ.
 Ergo inter sese paribus concurrere telis
 Romanas acies iterum videre Philippi;
 Nec fuit indignum superis, bis sanguine nostro
 Emathiam et latos Hæmi pinguescere campos.

1. Explain the expression 'quadrigæ addunt in spatia,' and illustrate the historical allusions in the latter part of this Georgic. Where are Mænala, Gargara, Ameria, Athos, Asia prata, Cayster, respectively situated?

2. By whom were the lands cultivated in the earlier and later periods of the Roman Republic? How many acres were granted to each citizen after the expulsion of the Kings?

'Nec *fortuitum* spernere cespitem
 Leges sinebant.' *Hor. Od. II. 15.*

What is the exact meaning of *fortuitum* in this passage? Who were the Partiarrii, and to whom in modern times do they bear a resemblance?

3. Mention the various kinds of grain and pulse, which were chiefly cultivated by the Romans. What were the machines designated by the terms *trahea*, *tribula*, *ventilabrum*, *vannus*? What is the difference between *palea* and *stramen*?

4. What period elapsed between the foundation of Rome,

and the expulsion of the Kings? Point out such portions of the account of that period as you may conceive to be mythical, historical, or of a mixed character.

5. Of how many did the Senate originally consist? What was its number in the time of Sulla? Who were the 'Patres Minorum Gentium' and the 'Patres Majorum Gentium'? What is the meaning of 'Patres Conscripti'?

6. About what time do the Equites seem to have been reckoned a distinct order? From whom were they chosen? What was the property qualification required of them towards the end of the Republic, and under the Emperors?

7. What was the constitution of Carthage? By what Greek writer is it commended? From what body were the chief officers of the state selected? Who were the Suffetes? Upon what occasions were the decisions of the people conclusive?

8. Who was Agathocles, and about what time did he flourish? Mention the circumstances which led to the invasion of Sicily by the Romans. What were its consequences? By whom was Regulus defeated? How are the Carthaginians said to have rewarded the victorious General?

9. Mention the rogations proposed (U. C. 378.) by C. Licinius Stolo. In what way were their provisions violated by the Nobles? What laws may be considered as the revival of them? What arguments against or in favour of those laws were urged by the Patrician and Plebeian classes?

FRIDAY, October 8.—AFTERNOON, 3 to 6.

GRAMMATICAL STRUCTURE OF THE
ENGLISH LANGUAGE.

Examiner, Mr. BURCHAM.

1. Give a definition of Language. Point out the difference between the form of the English and of the Greek and Latin languages, as regards the mode of expressing relations. Show that the first is more limited than the other two as to the power of varying the order of its words.

2. Mention the principal languages which belong to the Indo-European and Semitic branches respectively. Of what dialects does the Anglo-Saxon appear to have been originally composed? During what period was it the common language of England? Give a short account of the formation of the English language.

3. How is the affinity of any class of languages ascertained? Mention the class of words in which a similarity would indicate a common origin. Give instances of words of this class, which have a general resemblance in Greek, Latin, and English.

4. What is meant by *notional* and *relational* words? What is the law in reference to the increase or diminution of the latter in a language in proportion to its powers of inflection? Mention the terminations in the English language which generally give to the root the notion of smallness, and give instances.

5. Give the exact meaning of the term *adjective*. How do you defend such expressions as, 'He walks quick,' 'He talks loud,' 'He breathes short,' &c.? How are adjectives, which

are not simple roots, formed in the English language? Give a list of adjectives so formed which belong to the Saxon part of our language, and of others, which have a Latin and Greek origin.

6. Of what is the indefinite article ‘An’ a corruption? From what does Horne Tooke derive the definite article? Show that it is a corrupted demonstrative pronoun. Why may the relative be termed a *postpositive* article? Mention any phrases in our language which show the alliance of the definite article with the Greek $\tau\acute{o}$.

7. ‘A conjunction is a word which connects sentences together.’ Show that this definition will not apply in all cases. What explanation does Horne Tooke give of the conjunction *that*? Confirm his theory by instancing similar usages of the corresponding conjunctions in Greek and Latin.

8. Distinguish between *sex* and *gender*. How do you account for the fact that the terms signifying ‘child,’ ‘lamb,’ ‘foal,’ &c. in the greater part of the Teutonic languages are of the neuter gender? What does the termination ‘er’ imply? Why is ‘spinster’ applied only to females? Of what is ‘laundress’ an abbreviation?

9. In what respects are the following sentences faulty? “All words which are signs of complex ideas furnish matter of mistake.” “It is the practice of judges to direct juries to decide against incorporeal rights, which for many years have been relinquished.” “This accounts for Demosthenes charging Æschines with mal-versation.” “By greatness is not only meant the bulk of any single object, but the largeness of a whole view.” “Theism can only be opposed to polytheism or atheism.” “It was impossible not to suspect the veracity of this story.” “All the sophism he used was of no avail.” “They had no other subsistence, but the scanty pillage of a few farms.”

10. Distinguish between riches, richness—justice justness—acceptance, acceptation—negligence, neglect—quantity, number—policy, polity. Give sentences in which any one of these expressions is used improperly for the other. Correct the following sentences, giving reasons for your cor-

rections :—“The servant has an undeniable character.” “This undertaking is inadequate to your ability.” “No man had ever less friends, and more enemies.” “Polynices and Eteocles killed one another.” “Of all vices pride is the most universal.”

When may the expressions ‘more inferior’ ‘more preferable’ be used?

EXAMINATION FOR HONOURS.

EXAMINATION FOR HONOURS.

MATHEMATICS AND NATURAL PHILOSOPHY.

TUESDAY, October 12.—MORNING, 10 to 1.

ARITHMETIC, ALGEBRA, GEOMETRY.

Examiner, Rev. R. MURPHY.

1. FIND a fourth proportional to the numbers $365\frac{1}{4}$, $52\frac{1}{7}$, 13, and a mean proportional to the numbers 289 and 950625.
2. Sum the fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$, $\frac{1}{10}$. Convert $\frac{355}{113}$ into a decimal form, and extract the square root of 3·14159.
3. When money brings $3\frac{1}{2}$ per cent. interest, what present advance would be an equivalent to £2500 payable two years hence?
4. From the fraction $\frac{\frac{1}{3} + 20x + 20x^2}{1 + 12x + 30x^2 + 20x^3}$ subtract

$\frac{3 + 6x}{1 + 6x + 6x^2}$, and convert the former into a series arranged according to the descending powers of x .

5. Explain the principle of the method for completing the square in the formula $ax^2 + bx$, and find the relations between the coefficients necessary that the formula

$$x^4 + ax^3 + bx^2 + cx + d$$

may be, *per se*, a complete square.

6. Find the number of combinations of n things taken m and m together, and the total number of *even* combinations of the same.

7. Solve the equations

(1.) $x^4 - 11x^2 = 26702$.

(2.) $\sqrt{x^2 + 44} + \sqrt{x^2 + 6x + 9} = 25$.

(3.) $1 + x + x^2 + x^3 = 0$.

(4.) $\begin{cases} x + y + z = 12. \\ x^2 + y^2 + z^2 = 56. \\ x + z = 2y. \end{cases}$

8. Arcs of equal circles are in the same ratio as the angles at the centre which they subtend.

9. Give Euclid's demonstration that circles are to each other as the squares of their diameters.

10. Show how to construct a square which shall be equal to a given rectilineal figure.

TUESDAY, October 12.—AFTERNOON, 3 to 6.

PLANE AND SPHERICAL TRIGONOMETRY—
CONIC SECTIONS.

Examiner, Mr. JERRARD.

1. Give some account of the most approved method of constructing trigonometric tables.

2. Show that

$$(\cos A + \sqrt{-1} \sin A) (\cos B + \sqrt{-1} \sin B) \times \\ (\cos C + \sqrt{-1} \sin C) \dots = \cos (A + B + C + \dots) \\ + \sqrt{-1} \sin (A + B + C + \dots)$$

3. Of any plane triangle of which two sides and the included angle are given, find the other two angles and the third side.

4. The surface of a spherical triangle is measured by the excess of the sum of its three angles above two right angles.

5. Investigate the relations

$$\tan \frac{1}{2} (A + B) = \cot \frac{1}{2} C \frac{\cos \frac{1}{2} (a - b)}{\cos \frac{1}{2} (a + b)}, \\ \tan \frac{1}{2} (A - B) = \cot \frac{1}{2} C \frac{\sin \frac{1}{2} (a - b)}{\sin \frac{1}{2} (a + b)}.$$

6. Determine the expression for the distance of a point from a line of which the equation is given.

7. Show that in the parabola referred to any diameter and the tangent at its extremity, as axes, the square of the ordinate varies as the corresponding abscissa.

8. The normal at any point in the ellipse bisects the angle formed by the lines drawn from that point to the foci.

9. Assuming the equation of the hyperbola referred to its

axes, determine, by means of the transformation of coordinates, the equation referred to its asymptotes.

10. Give an outline of the method of discussing, by the separation of the variables, the general equation of curves of the second degree

$$A y^2 + B x y + C x^2 + D y + E x + F = 0.$$

WEDNESDAY, October 13.—MORNING, 10 to 1.

HYDROSTATICS AND OPTICS.

Examiner, REV. R. MURPHY.

1. Define specific gravity, and having given the specific gravities of two uniform fluids, find that of their mixture, supposing that no alteration in volume takes place.

2. The pressure of a heavy uniform fluid at rest is proportional to the depth from the surface, which surface is necessarily horizontal. Prove these propositions.

3. The horizontal pressures of a fluid against the sides of the containing vessel, or of an immersed solid, mutually destroy each other.

4. Describe the Archimedean screw as applied to the raising of water from wells, &c.; state another use to which it has recently been applied.

5. Find the density of the air remaining in a cylinder after the air-pump has been worked a certain number of times.

6. Find the deviation of a ray of light reflected between two plane mirrors inclined to each other at a given angle.

7. Find the number and position of the images of a point placed between two inclined mirrors.

8. The image of a straight line formed by a spherical reflector is a conic section.

9. Trace the path of a ray of light passing through parallel media of different densities; and also that of a ray passing through a prism.

10. Give an account of the formation of the primary and secondary rainbows.

11. Describe the Gregorian telescope, and find its magnifying power.

WEDNESDAY, October 13.—AFTERNOON, 3 to 6.

STATICS AND DYNAMICS.

Examiner, Mr. JERRARD.

1. Give an account of the different systems of pulleys, and investigate the conditions of equilibrium.

2. Determine the position of the centre of gravity of a triangular pyramid.

3. Find the resultant of any number of forces acting in any directions on a point; also express it in a form which shall contain only these forces and the angles between their directions.

4. Determine the coordinates of the centre of any number of parallel forces.

5. Show that the space described by a body, acted on by a uniform force from a state of rest, varies as the square of the time.

6. Explain Attwood's machine for illustrating the laws which regulate the descent of heavy bodies.

7. How long would a body be in falling down an inclined plane the length of which is 170 feet, and the inclination to the horizon 18° ?

8. Find the range of a projectile on a horizontal line passing through the point of projection, and determine the time of flight. Also solve the problem when the line is not horizontal.

9. Two elastic bodies moving with given velocities impinge directly on each other; determine their velocities after impact.

THURSDAY, October 14.—MORNING, 10 to 1.

GENERAL QUESTIONS.

Examiner, Rev. R. MURPHY.

1. What is the superficial area of a quadrangle of which the length is 23 yards $8\frac{1}{4}$ feet, and the breadth is 11 yards $5\frac{3}{4}$ feet?

2. At what date would the payment of £2000 be an equivalent for £1000 payable one year from this date, and another sum of £1000 payable the ensuing year, when money brings $3\frac{1}{2}$ per cent. compound interest?

3. Assuming the truth of the binomial theorem when the index is a positive integer, show that it holds true when the index is fractional or negative.

4. What must be the numerical values of x, y, z in order that the equation

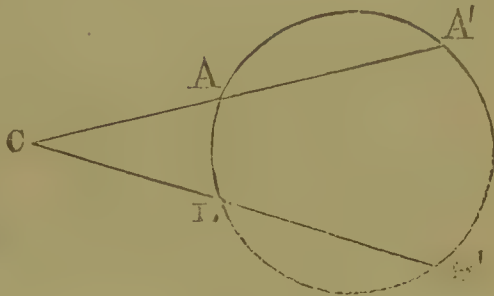
$$(1 + 7a - 5b)x + (1 - 3a + 4b)y - (2 + 3a + \frac{6}{15}b)z + (1 + 4a) = 0$$

may become an identity (i. e. that it may always hold true, whatever values are assigned to the quantities a, b)?

5. Define Harmonic Progression; whence is its name deduced? Find a harmonic mean between $\frac{1}{3}$ and $\frac{1}{5}$.

6. Find the least common multiple of the numbers 36, 100, 225.

7. Straight lines $CA A'$, $CB B'$ are drawn from any point without a circle, so as to intersect it,—prove that the angle C will be measured by half the difference of the arcs AB , $A'B'$.



8. Find the conditions of equilibrium of a floating body. If the section of a block be an equilateral triangle, find the depth to which it will sink in a fluid n times its specific gravity, the vertex being out of the fluid.

9. Construct for the position of a mirror E . B
 moveable round M , when to an eye E , the
 image of an object B , is exactly covered A
 by that of another, A ; the points $A, B,$ |
 E, M being given. M

THURSDAY, October 14.—AFTERNOON, 3 to 6.

GENERAL QUESTIONS.

Examiner, Mr. JERRARD.

1. Determine the locus of a point such that if straight lines be drawn from it to any number of given points in the same plane the sum of their squares shall be constant; and thence

find the locus of the vertex of the triangle of which the base and the sum of the squares of the sides are given.

2. Show how to find the distance between two inaccessible objects.

3. Prove that

$$\tan^{-1} x = x - \frac{x^3}{3} + \frac{x^5}{5} - \dots$$

and apply it in obtaining

$$\begin{aligned} \frac{\pi}{4} = 4 \left\{ \frac{1}{5} - \frac{1}{3} \left(\frac{1}{5} \right)^3 + \frac{1}{5} \left(\frac{1}{5} \right)^5 - \dots \right\} \\ - \left\{ \frac{1}{239} - \frac{1}{3} \left(\frac{1}{239} \right)^3 + \dots \right\}. \end{aligned}$$

4. Give the trigonometric expression for the factors of $x^m \pm 1$.

5. Determine, by means of the transformation of the co-ordinates, the curve represented by the equation

$$y^2 + 2xy - x^2 - 2y - 18x - 29 = 0.$$

6. In each of the five regular polyhedrons, find the expression for the inclination of two adjacent faces.

7. A bent lever with a weight attached to each extremity is moveable in a vertical plane about the angular point; find the position in which it will rest.

8. A weight descends vertically drawing another weight up an inclined plane by a string which passes over a pulley and is parallel to the plane; determine the circumstances of the motion.

CHEMISTRY.

Examiner, Professor DANIELL.

FRIDAY, October 15.—MORNING, 10 to 1.

1. Describe and explain the best methods of estimating the moisture of the atmosphere.
2. What would be the volume at 65° Fahr. of 100 cubic inches of air measured at 32° Fahr.?
3. What is meant by *double-elective affinity*? Explain with reference to an example.
4. What is the constitution of Water? and in what manner does it enter into secondary combination?
5. Describe and explain the process of the Vinous fermentation.

NATURAL HISTORY.

FRIDAY, October 15.—AFTERNOON, 3 to 6.

BOTANY.

Examiner, Professor HENSLOW.

CHARACTERS OF THE PRINCIPAL NATURAL FAMILIES OF EUROPEAN PLANTS.

State the principal characters of the following Orders :

1. Violaceæ.
2. Lythraceæ.
3. Caprifoliaceæ.
4. Coniferæ.
5. Gramineæ.

Compare the following Orders, by showing in what respects their characters agree and disagree :

6. Leguminosæ with Rosaceæ.
7. Umbelliferæ with Araliaceæ.
8. Amaryllideæ with Liliaceæ.

To what Natural Orders do you refer the plants possessing the following characters ?

9. *Flores* hermaphroditi vel abortu unisexuales.

Calyx ovario connatus, limbo post anthesin sæpe aucto.

Corolla monopetala, tubulosa, disco epigyno inserta, 3—5 loba.

Stamina 1—5 corollæ lobis alterna, tubo prope basin inserta.

Ovarium uniloculare, loculis duobus abortivis, tertio uniovulato.

Ovulum anatropum pendulum.

Stylus simplex filiformis.

- Stigmata* 2—3 libera vel connata.
Fructus indehiscens, coriaceus vel membranaceus, calycis limbo sæpe papposo coronatus, 2—3 locularis, monospermus.
Semen inversum, exalbuminosum.
Embryo orthotropus, dicotyledoneus.
10. *Flores* hermaphroditi vel abortu unisexuales, regulares, singuli bracteolati.
Perigonium hexaphyllum; foliola scarioso-glumacea vel sub-petaloidea, persistentia.
Stamina 6 foliolis opposita, vel 3 ante tria exteriora sita.
Ovarium sessile, liberum, è carpellis tribus conflatum, triloculare vel uniloculare.
Ovula 3 basilaria, vel plurima e funiculis erecta, anatropa.
Stylus terminalis, simplex.
Stigmata 3 filiformia plerumque distincta.
Capsula 1—3 locularis, trivalvis.
Semina 3 vel plurima, erecta.
Embryo monocotyledoneus, in basi albuminis carnosius inclusus.

NATURAL HISTORY.

Examiner, Dr. ROGET.

State the principles on which the Zoological Classification of Cuvier is founded; and point out the peculiarities which distinguish it from other systems.

CLASSICS.

TUESDAY, October 19.—MORNING, 10 to 1.

ENGLISH PROSE COMPOSITION.

Examiner, Rev. Dr. JERRARD.

Subject.—The uses of Ancient and Modern History.

Ceterum ex aliis negotiis, quæ ingenio exercentur, in primis magno usui est memoria rerum gestarum.—*Sallust. Bellum Jug. Cap. IV.*

TUESDAY, October 19.—AFTERNOON, 3 to 6.

LATIN PROSE.

Examiner, Mr. BURCHAM.

Translate into Latin Prose.

The life and faculties of man, at the best but short and limited, cannot be employed more rationally or laudably, than

in the search of knowledge; and especially of that sort which relates to our duty, and conduces to our happiness. Whenever I perceive any glimmering of truth before me, I readily pursue and endeavour to trace it to its source; without any reserve or caution of pushing the discovery too far, or opening too great a glare of it to the public. I look upon the discovery of anything which is true, as a valuable acquisition to society; which cannot possibly hurt, or obstruct the good effect of any other truth whatsoever: for they all partake of one common essence, and necessarily coincide with each other; and, like the drops of rain, which fall separately into the river, mix themselves at once with the stream, and strengthen the general current.—*Conyers Middleton.*

Re-translate into Latin Prose.

Men of Ardea, my friends of old, of late my fellow-citizens, a relation established by your kindness, and formed by my fortune, let not any one of you imagine that I have come hither forgetting my situation. The present case and the common danger render it necessary that every one should contribute to the public every kind of assistance in his power. And when shall I repay so great obligations as I owe you, if I am now remiss? When can I be serviceable to you if not in war? By my knowledge in that line I supported a character in my native country, and though never overcome by an enemy in war, I have been banished in peace by my ungrateful countrymen. To you, men of Ardea, fortune has presented an opportunity of making a recompense for all the valuable favours which the Roman people have formerly conferred upon you. How great these have been, ye yourselves remember; nor need I, who know you to be grateful, remind you of them. At the same time you may acquire, for this your city, great military renown by acting against the common enemy. The nation, which is now advancing, in a disorderly march, is one to which nature has given minds and bodies of greater size than strength; for which reason they bring to every contest more of terror than of real vigour. The disaster of Rome may serve as a proof of this; they took

the city when every avenue lay open ; but still a small band in the citadel and capitol is able to resist them. Already tired of the protracted siege they retire and spread themselves over the face of the country. Gorged with food and greedy draughts of wine, when night comes on, they stretch themselves promiscuously, like brutes, near streams of water, without intrenchment and without either guards or advanced posts, using at present, in consequence of success, still less caution than usual. If you are determined to defend your walls, and not to suffer all this country to become a province of Gaul, take arms in a body at the first watch. Follow me, to kill, not to fight. If I do not deliver them into your hands, overpowered with sleep, to be slaughtered like cattle, I am content to meet the same issue of affairs at Ardea which I found at Rome.

WEDNESDAY, October 20.—MORNING, 10 to 1.

GREEK.

Examiner, Rev. Dr. JERRARD.

Translate :

(A.) HOMER*, ILIAD, Book V.

ἡ μὲν ἐποιχομένη χρυσάμπυκας ἔντυεν ἵππους 720
 Ἡρη, πρέσβα θεὰ, θυγάτηρ μέγαλοιο Κρόνοιο.
 Ἡβη δ' ἀμφ' ὀχέεσσι θοῶς βάλε καμπύλα κύκλα
 χάλκεα, ὀκτάκνημα, σιδηρέῳ ἄξονι ἀμφίς·
 τῶν ἦτοι χρυσῆ ἵτυς ἀφθιτος, αὐτὰρ ὑπερθεὶ
 χάλκε' ἐπίσσωτρα, προσαρηρότα, θαῦμα ἰδέσθαι·

* Edit.

πλήμναι δ' ἀργύρου εἰσὶ περιδρομοὶ ἀμφοτέρωθεν·
 δίφρος δὲ χρυσεῖσι καὶ ἀργυρέοισιν ἰμάσιν
 ἐντέταται· δοιαὶ δὲ περιδρομοὶ ἀντυγές εἰσι
 τοῦ δ' ἐξ ἀργύρεος ῥυμὸς πέλεν· αὐτὰρ ἐπ' ἄκρῳ
 δῆσε χρύσειον καλὸν ζυγόν, ἐν δὲ λέπαδνα 730
 κάλ' ἔβαλε, χρύσει· ὑπὸ δὲ ζυγὸν ἤγαγεν Ἥρη
 ἵππους ὠκύποδας, μεμαυῖ' ἔριδος καὶ αὐτῆς.

Αὐτὰρ Ἀθηναίη, κούρη Διὸς αἰγιόχοιο,
 πέπλον μὲν κατέχευεν ἑανὸν πατρὸς ἐπ' οὔδει,
 ποικίλον, ὃν ῥ' αὐτῇ ποιήσατο καὶ κάμε χερσίν·
 ἢ δὲ, χιτῶν' ἐνδύσα, Διὸς νεφεληγερέταο
 τεύχεσιν ἐς πόλεμον θωρήσσετο δακρυόεντα,
 ἀμφὶ δ' ἄρ' ὤμοισι βάλετ' αἰγίδα θυσσανόεσσαν,
 δεινὴν, ἣν περὶ μὲν πάντη Φόβος ἐστεφάνωται·
 ἐν δ' Ἔρις, ἐν δ' Ἀλκῆ, ἐν δὲ κρυόεσσα Ἰωκῆ· 740
 ἐν δέ τε Γοργεῖη κεφαλῇ δεινοῖο πελώρου,
 δεινὴ τε, σμερδνὴ τε, Διὸς τέρας αἰγιόχοιο.
 κρατὶ δ' ἐπ' ἀμφίφαλον κυνέην θέτο τετραφάληρον,
 χρυσεῖην, ἑκατὸν πόλεων πρυλέεσσ' ἀραρυῖαν.
 ἐς δ' ὄχρα φλόγεα ποσὶ βήσετο· λάζετο δ' ἔγχος
 βριθῦ, μέγα, στιβαρὸν, τῷ δάμνησι στίχας ἀνδρῶν
 ἠρώων, τοῖσί τε κοτέσσεται ὀβριμοπάτρη.

Ἥρη δὲ μάστιγι θοῶς ἐπεμαίετ' ἄρ' ἵππους.
 αὐτόμαται δὲ πύλαι μύκον Οὐρανοῦ, ἃς ἔχον Ὀρραι,
 τῆς ἐπιτέτραπται μέγας Οὐρανοῦ, Οὐλυμπός τε, 750
 ἠμὲν ἀνακλῖναι πυκινὸν νέφος, ἠδ' ἐπιθεῖναι.

(B.) ÆSCHYLUS*, PROM. VINCTUS.

ἦ μὴν ἔτι Ζεὺς, καίπερ αὐθάδη φρονῶν,
 ἔσται ταπεινός, οἷον ἐξαρτύεται
 γάμον γαμεῖν· ὃς αὐτὸν ἐκ τυραννίδος
 θρόνων τ' αἴιστον ἐκβαλεῖ· πατρὸς δὲ ἀρὰ 910
 Κρόνου τότ' ἤδη παντελῶς κρανθήσεται,
 ἣν ἐκπίτνων ἠράτο δηναίων θρόνων.
 τοιῶνδε μόχθων ἐκτροπὴν οὐδεὶς θεῶν
 δύναιτ' ἂν αὐτῷ πλὴν ἐμοῦ δεῖξαι σαφῶς.

* Edit.

ἐγὼ τὰδ' οἶδα χῶ' τρόπῳ. πρὸς ταῦτα νῦν
 θαρσῶν καθήσθω τοῖς πεδαρσίοις κτύποις
 πιστὸς, τινάσσων τ' ἐν χεροῖν πύρπνου βέλος.
 οὐδὲν γὰρ αὐτῷ ταῦτ' ἐπαρκέσει τὸ μὴ οὐ
 πεσεῖν ἀτίμως πτώματ' οὐκ ἀνασχετά·
 τοῖον παλαιστὴν νῦν παρασκευάζεται 920
 ἐπ' αὐτὸς αὐτῷ, δυσμαχώτατον τέρας·
 ὃς δὴ κεραυνοῦ κρείσσον' εὐρήσει φλόγα,
 βροντῆς θ' ὑπερβάλλοντα καρτερὸν κτύπον·
 θαλασσίαν τε γῆς τινάκτειραν νόσον
 τρίαιναν, αἰχμὴν τὴν Ποσειδῶνος, σκεδᾶ.
 πταίσας δὲ τῷδε πρὸς κακῷ μαθήσεται
 ὅσον τό τ' ἄρχειν καὶ τὸ δουλεύειν δίχα.

(C.) DEMOSTHENES*, PHIL. II.

Ὅταν ὦ ἄνδρες Ἀθηναῖοι λόγοι γίνωνται περὶ ὧν Φίλιππος
 πράττει καὶ βιάζεται παρὰ τὴν εἰρήνην, αἰεὶ τοὺς ὑπὲρ ἡμῶν
 λόγους καὶ δικαίους καὶ φιλανθρώπους ὁρῶ φαινομένους, καὶ
 λέγειν μὲν ἅπαντας αἰεὶ τὰ δέοντα δοκοῦντας τοὺς κατηγοροῦν-
 τας Φιλίππου, γιγνόμενον δ' οὐδὲν ὡς ἔπος εἰπεῖν τῶν δεόντων
 οὐδ' ὧν ἕνεκα ταῦτ' ἀκούειν ἄξιον· ἀλλ' εἰς τοῦτο ἤδη προηγ-
 μένα τυγχάνει πάντα τὰ πράγματα τῇ πόλει, ὥσθ' ὅσῳ τις ἂν
 μᾶλλον καὶ φανερώτερον ἐξελέγχη Φίλιππον καὶ τὴν πρὸς ὑμᾶς
 εἰρήνην παραβαίνοντα καὶ πᾶσι τοῖς Ἑλλησιν ἐπιβουλεύοντα,
 τοσοῦτῳ τὸ τί χρὴ ποιεῖν συμβουλεύσαι χαλεπώτερον εἶναι.
 αἴτιον δὲ τούτων, ὅτι πάντας ὦ ἄνδρες Ἀθηναῖοι τοὺς πλεονεκ-
 τεῖν ζητοῦντας ἔργῳ κωλύειν καὶ πράξεσιν, οὐχὶ λόγοις δέον
 πρῶτον μὲν ἡμεῖς οἱ παριόντες τούτων μὲν ἀφέσταμεν, καὶ γρά-
 φειν καὶ συμβουλεύειν διὰ τὴν πρὸς ὑμᾶς ἀπέχθειαν ὀκνοῦν-
 τες, οἷα ποιεῖ δέ, ὡς δεινὰ καὶ χαλεπά, ταῦτα διεξερχόμεθα·
 ἔπειθ' ὑμεῖς οἱ καθήμενοι, ὡς μὲν ἂν εἴποιτε δικαίους λόγους
 καὶ λέγοντος ἄλλου συνείητε, ἄμεινον Φιλίππου παρεσκευάσθε,
 ὡς δὲ κωλύσαιτ' ἂν ἐκείνον πράττειν ταῦτα ἐφ' ὧν ἐστὶ νῦν,
 παντελῶς ἀργῶς ἔχετε. συμβαίνει δὴ πρῶγμα ἀναγκαῖον, οἶμαι,
 καὶ ἴσως εἰκόσ· ἐν οἷς ἑκάτεροι διατρίβετε καὶ περὶ ἃ σπουδά-
 ζετε, ταῦτ' ἄμεινον ἑκατέροις ἔχει, ἐκείνῳ μὲν αἰ πράξεις, ὑμῖν

* Edit.

δ' οἱ λόγοι. εἰ μὲν οὖν καὶ νῦν λέγειν δικαιοτέρα ὑμῖν ἔξαρκεῖ, ῥάδιον, καὶ πόνος οὐδεὶς πρόσσεστι τῷ πράγματι· εἰ δ' ὅπως τὰ παρόντ' ἐπανορθωθήσεται, δεῖ σκοπεῖν, καὶ μὴ προελθόντα ἔτι πορρῶτέρω λήσει πάντας ἡμᾶς, μηδ' ἐπιστήσεται μέγεθος δυνάμεως πρὸς ἣν οὐδ' ἀντᾶραι δυνησόμεθα, οὐχ ὁ αὐτὸς τρόπος ὅσπερ πρότερον τοῦ βουλευέσθαι, ἀλλὰ καὶ τοῖς λέγουσιν ἅπασι καὶ τοῖς ἀκούουσιν ὑμῖν τὰ βέλτιστα καὶ τὰ σώσοντα τῶν ῥάστων καὶ τῶν ἠδίστων προαιρετέον.

1. (A.) Give short explanatory notes on this extract. What portions of it strike you as the most highly poetical? Of what passage in Milton do the last three verses remind you?

2. (B.) Do you prefer the reading τὸ μὴ οὐ to τὸ μὴ in line 918? If so, why? In which of the verses of this extract does "the sound" appear to you to be most remarkably "an echo to the sense?"

3. (C.) What was the state of the affairs of the Athenians, as regarded Philip, at the time that the 2nd Philipic was delivered? What effect had it upon them?

4. Translate the following short sentences into Greek: "Not having found him they did not return." "If they had found him they would have returned." "If thou ^{be} } _{art} } the king of Macedonia, command thy soldiers not to enter the city." What mood of the verb substantive ought to be employed in the last sentence in Greek, Latin, and English respectively? State the reasons.

5. Give Herodotus's account of the various kinds of embalming practised by the Egyptians. Has this account been confirmed by modern observations? From what sources did he derive his information respecting the Egyptians? To what other Classic Authors are we indebted for a knowledge of the affairs of that people?

WEDNESDAY, October 20.—AFTERNOON, 3 to 6.

GREEK.

Examiner, Mr. BURCHAM.

Translate :

(A.) HERODOTUS*, Book II. Chap. LXVIII.

Ἐὸν δὲ τετράπουν, χερσαῖον καὶ λιμναῖόν ἐστι· τίκει· μὲν γὰρ ὡὰ ἐν γῆ, καὶ ἐκλέπει· καὶ τὸ πολλὸν τῆς ἡμέρης διατρίβει ἐν τῷ ξηρῷ, τὴν δὲ νύκτα πᾶσαν ἐν τῷ ποταμῷ· θερμότερον γὰρ δὴ ἐστὶ τὸ ὕδωρ τῆς τε αἰθρίας καὶ τῆς δρόσου. πάντων δὲ τῶν ἡμεῖς ἴδμεν θνητῶν, τοῦτο ἐξ ἐλαχίστου μέγιστον γίνεται. τὰ μὲν γὰρ ὡὰ, χηνέων οὐ πολλῷ μέζονα τίκει· καὶ ὁ νεοσσὸς κατὰ λόγον τοῦ ὡοῦ γίνεται· αὐξανόμενος δὲ, γίνεται καὶ ἐς ἑπτακαίδεκα πήχεας, καὶ μέζων ἔτι. ἔχει δὲ ὀφθαλμοὺς μὲν ὕδς, ὀδόντας δὲ μεγάλους καὶ χαυλιόδοντας, κατὰ λόγον τοῦ σώματος. γλῶσσαν δὲ μῦνον θηρίων οὐκ ἔφυσε. οὐδὲ τὴν κάτω κινεῖ γνάθον· ἀλλὰ καὶ τοῦτο μῦνον θηρίων τὴν ἄνω γνάθον προσάγει τῇ κάτω. ἔχει δὲ καὶ ὄνυχας καρτεροὺς, καὶ δέρμα λεπιδωτὸν ἄρρηκτον ἐπὶ τοῦ νώτου. τυφλὸν δὲ ἐν ὕδατι, ἐν δὲ τῇ αἰθρίῃ ὀξυδερκέστατον. ἅτε δὴ ὦν ἐν ὕδατι δίαιταν ποιούμενον, τὸ στόμα ἔνδοθεν φορέει πᾶν μεστὸν βδελλέων. τὰ μὲν δὴ ἄλλα ὄρνεα καὶ θηρία φεύγει μιν· ὁ δὲ τροχίλος εἰρηναῖόν οἱ ἐστὶ, ἅτε ὠφελεομένῳ πρὸς αὐτοῦ· ἐπεὰν γὰρ ἐς τὴν γῆν ἐκβῆ ἔκ τοῦ ὕδατος ὁ κροκόδειλος, καὶ ἔπειτα χάνη, (ἐώθει γὰρ τοῦτο ὡς ἐπίπαν ποιεῖν πρὸς τὸν ζέφυρον,) ἐνθαῦτα ὁ τροχίλος ἐσδύνων ἐς τὸ στόμα αὐτοῦ, καταπίνει τὰς βδέλλας· ὁ δὲ ὠφελεύμενος ἥδεται, καὶ οὐδὲν σίνεται τὸν τροχίλον.

* Edit.

(B.) THUCYDIDES*, Book I. Chap. XC.

Ἦξιόν τε αὐτοὺς μὴ τειχίζειν, ἀλλὰ καὶ τῶν ἔξω Πελοποννήσου μάλλον, ὅσοις εἰστήκει, ξυγκαθελεῖν μετὰ σφῶν τοὺς περιβόλους, τὸ μὲν βουλόμενον καὶ ὑποπτον τῆς γνώμης οὐ δηλοῦντες ἐς τοὺς Ἀθηναίους, ὡς δὲ τοῦ βαρβάρου, εἰ αὐθις ἐπέλθοι, οὐκ ἂν ἔχοντος ἀπὸ ἐχυροῦ πόθεν, ὥσπερ νῦν ἐκ τῶν Θηβῶν, ὀρμᾶσθαι τὴν τε Πελοπόννησον πᾶσιν ἔφασαν ἱκανὴν εἶναι ἀναχώρησίν τε καὶ ἀφορμήν. οἱ δ' Ἀθηναῖοι Θεμιστοκλέους γνώμη τοὺς μὲν Λακεδαιμονίους ταῦτ' εἰπόντας, ἀποκρινάμενοι ὅτι πέμψουσιν ὡς αὐτοὺς πρέσβεις περὶ ὧν λέγουσιν, εὐθύς ἀπήλλαξαν· ἑαυτὸν δ' ἐκέλευεν ἀποστέλλειν ὡς τάχιστα ὁ Θεμιστοκλῆς ἐς τὴν Λακεδαίμονα, ἄλλους δὲ πρὸς ἑαυτῷ ἐλομένους πρέσβεις μὴ εὐθύς ἐκπέμπειν, ἀλλ' ἐπισχεῖν μέχρι τοσοῦτου, ἕως ἂν τὸ τεῖχος ἱκανὸν ἄρῳσιν ὥστε ἀπομάχεσθαι ἐκ τοῦ ἀναγκαιοτάτου ὕψους· τειχίζειν δὲ πάντας πανδημεὶ τοὺς ἐν τῇ πόλει, καὶ αὐτοὺς καὶ γυναῖκας καὶ παῖδας, φειδομένους μήτε ἰδίου μήτε δημοσίου οἰκοδομήματος, ὅθεν τις ὠφέλεια ἔσται ἐς τὸ ἔργον, ἀλλὰ καθαιροῦντας πάντα. καὶ ὁ μὲν ταῦτα διδάξας, καὶ ὑπειπὼν τᾶλλα ὅτι αὐτὸς τὰκεῖ πράξει, ᾤχετο. καὶ ἐς τὴν Λακεδαίμονα ἐλθὼν οὐ προσῆει πρὸς τὰς ἀρχάς, ἀλλὰ διῆγε καὶ προὔφασίζετο. καὶ ὁπότε τις αὐτὸν ἔροιτο τῶν ἐν τέλει ὄντων ὅ τι οὐκ ἐπέρχεται ἐπὶ τὸ κοινόν, ἔφη τοὺς ξυμπρέσβεις ἀναμένειν, ἀσχολίας δὲ τινος οὕσης αὐτοὺς ὑπολειφθῆναι, προσδέχεσθαι μέντοι ἐν τάχει ἤξειν, καὶ θαυμάζειν ὡς οὐπω πάρεισιν.

(C.) EURIPIDES †, MEDEA, 216—260.

ΜΗ. Κορίνθιαι γυναῖκες, ἐξῆλθον δόμων,
 μή μοί τι μέμψησθ'· οἶδα γὰρ πολλοὺς βροτᾶν
 σεμνοὺς γεγῶτας, τοὺς μὲν ὀμμάτων ἄπο,
 τοὺς δ' ἐν θυραίοις· οἱ δ' ἀφ' ἡσύχου ποδὸς
 δύσκειαν ἐκτήσαντο καὶ ῥαθυμίαν.
 δίκη γὰρ οὐκ ἔνεστιν ὀφθαλμοῖς βροτῶν,
 ὅστις, πρὶν ἀνδρὸς σπλάγχνον ἐκμαθεῖν σαφῶς,
 στυγεῖ δεδορκῶς, οὐδὲν ἠδικημένος.

* Edit.

† Edit.

χρή δὲ ξένον μὲν κάρτα προσχωρεῖν πόλει,
 οὐδ' ἀστὸν ἦνεσ', ὅστις αὐθάδης γεγώς,
 πικρὸς πολίταις ἐστὶν ἀμαθίας ὑπο.
 ἔμοι δ' ἄελπτον πρᾶγμα προσπεσὸν τ' ἔδε
 ψυχὴν διέφθαρκ'. οἴχομαι δὲ, καὶ βίου
 χάριν μεθεῖσα κατθανεῖν χρήζω, φίλαι.
 ἐν ᾧ γὰρ ἦν μοι πάντα, γιγνώσκεις καλῶς,
 κάκιστος ἀνδρῶν ἐκβέβηχ' οὐμὸς πόσις.
 πάντων δ' ὅσ' ἐστ' ἐμψυχα, καὶ γνώμην ἔχει,
 γυναιῖκες ἐσμὲν ἀθλιώτατον φυτόν.
 ἄς πρῶτα μὲν δεῖ χρημάτων ὑπερβολῇ
 πόσιν πρίασθαι, δεσπότην τε σώματος
 λαβεῖν· κακοῦ γὰρ τοῦτ' ἔτ' ἄλγιον κακόν.
 κὰν τῷδ' ἀγὼν μέγιστος, ἢ κακὸν λαβεῖν,
 ἢ χρηστόν· οὐ γὰρ εὐκλεεῖς ἀπαλλαγαι
 γυναιξίν, οὐδ' οἷόν τ' ἀνήνασθαι πόσιν.
 εἰς καινὰ δ' ἦθη καὶ νόμους ἀφιγμένῃ,
 δεῖ μάντιν εἶναι, μὴ μαθούσαν οἴκοθεν,
 ὅτῳ μάλιστα χρήσεται ξυνευνέτη.
 κὰν μὲν τὰδ' ἡμῖν ἐκπονουμέναισιν εὖ
 πόσις ξυνοικῇ, μὴ βία φέρων ζυγόν,
 ζηλωτὸς αἰῶν· εἰ δὲ μὴ, θανεῖν χρεῶν.
 ἀνήρ δ', ὅταν τοῖς ἔνδον ἄχθηται ξυνῶν,
 ἔξω μολῶν ἐπαυσε καρδίας ἄσσην,
 ἢ πρὸς φίλον τιν', ἢ πρὸς ἡλικας τραπέϊς·
 ἡμῖν δ' ἀνάγκη πρὸς μίαν ψυχὴν βλέπειν.
 λέγουσι δ' ἡμᾶς, ὡς ἀκίνδυνον βίον
 ζῶμεν κατ' οἴκους, οἱ δὲ μάρνανται δορί·
 κακῶς φρονούντες, ὡς τρὶς ἂν παρ' ἀσπίδα
 στήναι θέλοιμ' ἂν μάλλον, ἢ τεκεῖν ἅπαξ.
 ἀλλ' οὐ γὰρ αὐτὸς πρὸς σὲ κᾶμ' ἦκει λόγος·
 σοὶ μὲν πόλις θ' ἦδ' ἐστὶ καὶ πατὴρ δόμοι,
 βίου τ' ὄνησις, καὶ φίλων κοινωνία·
 ἐγὼ δ' ἔρημος, ἀπολις οὖσ', ὑβρίζομαι
 πρὸς ἀνδρὸς, ἐκ γῆς βαρβάρου λελησμένη,
 οὐ μητέρ', οὐκ ἀδελφόν, οὐχὶ συγγενῆ,
 μεθορμίσασθαι τῆσδ' ἔχουσα συμφορᾶς.

1. For *είσθήκει* in extract (B.) some editions have *ξυνεισθήκει*. Which do you consider the better reading, and why? Put into Latin the words *όποτε τις αὐτόν ἔροιτο*. Explain the force of *ότι*, and point out accurately the difference of meaning between *ότι οὐκ ἐπέρχεται* and *διότι οὐκ ἐπ.*

2. Quote any passages from Aristophanes in which Euripides is ridiculed. Enumerate the extant plays of the former in their order of succession. Give the plot of the *Phœnissæ* of Euripides. In what respect, as regards the family of *Œdipus*, do he and Sophocles disagree?

3. Mention the principal extant dialogues of Plato. How do he and Xenophon differ in reference to Socrates? Give a short account of the chief political changes which took place in Athens, Sparta and Thebes, between the end of the Peloponnesian war and the battle of Mantinea.

4. Mention the most distinguished men in Athens and Sparta during the Peloponnesian war. In what year of that war did the expedition against Pylos take place? Describe the situation of the island Cythera, and give its modern name.

THURSDAY, October 21.—MORNING, 10 to 1.

LATIN.

Examiner, Rev. Dr. JERRARD.

Translate :

(A.) CICERO*, *PRO ARCHIA POETA*, Chap. VII.

Quaeret quispiam : " Quid ? illi ipsi summi viri, quorum

* Edit.

virtutes literis proditae sunt, istanc doctrina, quam tu laudibus effers, eruditi fuerunt?" Difficile est hoc de omnibus confirmare; sed tamen est certum, quid respondeam. Ego multos homines excellenti animo ac virtute fuisse sine doctrina, et naturae ipsius habitu prope divino, per se ipsos et moderatos et graves exstitisse fateor. Etiam illud adiungo, saepius ad laudem atque virtutem naturam sine doctrina, quam sine natura valuisse doctrinam. Atque idem ego contendo, quum ad naturam eximiam atque illustrem accesserit ratio quaedam conformatioque doctrinae: tum illud nescio quid praeclarum ac singulare solere existere. Ex hoc esse hunc numero, quem patres nostri viderunt, divinum hominem, Africanum: ex hoc C. Laelium, L. Furium, moderatissimos homines et continentissimos: ex hoc fortissimum virum, et illis temporibus doctissimum, M. Catonem illum senem: qui profecto, si nihil ad percipiendam colendamque virtutem literis adiuventur, nunquam se ad earum studium contulissent. Quod si non hic tantus fructus ostenderetur, et si ex his studiis delectatio sola peteretur: tamen, ut opinor, hanc animi adversionem humanissimam ac liberalissimam iudicaretis. Nam ceterae neque temporum sunt, neque aetatum omnium, neque locorum: haec studia adolescentiam alunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solatium praebent, delectant domi, non impediunt foris, pernoctant nobiscum, peregrinantur, rusticantur.

(B.) VIRGIL*, GEORGICS, Book IV.

Ac veluti, lentis Cyclopes fulmina massis
 Quum properant, alii taurinis follibus auras
 Accipiunt redduntque, alii stridentia tingunt
 Æra lacu; gemit impositis incudibus Ætna;
 Illi inter sese magna vi brachia tollunt
 In numerum, versantque tenaci forcipe ferrum:
 Non aliter, si parva licet componere magnis,
 Cecropias innatus apes amor urget habendi,
 Munere quamque suo. Grandævis oppida curæ,

* Edit.

Et munire favos, et dædala fingere tecta :
 At fessæ multa referunt se nocte minores,
 Crura thymo plenæ : pascuntur et arbuta passim,
 Et glaucas salices, casiamque, crocumque rubentem,
 Et pinguem tiliam, et ferrugineos hyacinthos.
 Omnibus una quies operum, labor omnibus unus.
 Mane ruunt portis ; nusquam mora : rursus easdem
 Vesper ubi e pastu tandem decedere campis
 Admonuit, tum tecta petunt, tum corpora curant ;
 Fit sonitus, mussantque oras et limina circum.
 Post, ubi jam thalamis se composuere, siletur
 In noctem, fessosque sopor suus occupat artus.
 Nec vero a stabulis pluvia impendente recedunt
 Longius, aut credunt cælo adventantibus Euris ;
 Sed circum tutæ sub mœnibus urbis aquantur,
 Excursusque breves tentant, et sæpe lapillos,
 Ut cymbæ instabiles fluctu jactante suburram,
 Tollunt ; his sese per inania nubila librant.

(C.) TACITUS*, AGRICOLA, Chap. XLV.

Non vidit Agricola obsessam curiam et clausum armis senatum et eadem strage tot consularium caedes, tot nobilissimarum feminarum exsilia et fugas. una adhuc victoria Carus Metius censebatur, et intra Albanam arcem sententia Messalini strepebat, et Massa Bebius iam tum reus erat. Mox nostrae duxere Helvidium in carcerem manus ; nos Maurici Rusticique visus, nos innocenti sanguine Senecio perfudit. Nero tamen subtraxit oculos, iussitque scelera, non spectavit : præcipua sub Domitiano miseriarum pars erat, videre et aspici : cum suspiria nostra subscriberentur, cum denotandis tot hominum palloribus sufficeret saevus ille vultus et rubor, a quo se contra pudorem muniēbat. Tu vero felix, Agricola, non vitae tantum claritate, sed etiam opportunitate mortis, ut perhibent, qui interfuerunt novissimis sermonibus tuis, constans et libens fatum excepisti, tanquam pro virili portione innocentiam principi donares. Sed mihi

* Edit.

filiaeque eius, praeter acerbiter parentis erepti, auget maestitiam, quod adsidere valetudini, fovere deficientem, satiari vultu, complexu non contigit. excepissimus certe mandata vocesque, quas penitus animo figeremus. noster hic dolor, nostrum vulnus: nobis tam longae absentiae conditione ante quadriennium amissus est. Omnia sine dubio, optime parentum, adsidente amantissima uxore superfuere honori tuo: paucioribus tamen lacrimis compositus es, et novissima in luce desideravere aliquid oculi tui,

1. (A.) What passage of Horace in praise of learning is suggested by this extract? What were the principal events in the life of Africanus and of Cato Major?

2. (A.) Give the original signification of 'ratio,' and thence deduce its secondary meanings; illustrating each of them by the corresponding term in Greek. What do you regard as the origin of *deponent* verbs in Latin; and how do you explain the fact that several of them govern the ablative case?

3. (C.) Explain the chief historical allusions in this passage. When did Agricola arrive in Britain? What was the general character of his administration; and how far was the dominion of the Romans extended by him?

4. Give Tacitus's account of the language, manners, and religion of the Britons; also, of the natural productions of the island. Who were the Silures and the Brigantes?

5. What do you consider as the most probable account of the origin of the Latin language? Support your opinion by proofs.

THURSDAY, October 21.—AFTERNOON, 3 to 6.

LATIN.

Examiner, Mr. BURCHAM.

Translate :

(A.) LIVY*, Book XXI. Chap. XLVII.

Hoc primum cum Hannibale prælium fuit; quo facile apparuit, et equitatu meliorem Pœnum esse, et ob id campos patentes, quales sunt inter Padum Alpesque, bello gerendo Romanis aptos non esse. Itaque proxima nocte, jussis militibus vasa silentio conligere, castra ab Ticino mota, festinatique ad Padum est; ut ratibus, quibus junxerat flumen, nondum resolutis, sine tumultu atque insectatione hostis, copias trajiceret. Prius Placentiam pervenere, quam satis sciret Hannibal ab Ticino profectos: tamen ad sexcentos moratorum in citeriore ripa, segniter ratem solventes, cepit. transire non potuit pontem, ut extrema resoluta erant, tota rate in secundam aquam labente. Cœlius auctor est, Magonem cum equitatu et Hispanis peditibus flumen extemplo transnasse; ipsum Hannibalem per superiora Padi vada exercitum traduxisse, elephantis in ordinem ad sustinendum inpetum fluminis obpositis. Ea peritis annis ejus vix fidem fecerint. nam neque equites, armis equisque salvis, tantam vim fluminis superasse verisimile est, ut jam Hispanos omnes inflati transvexerint utres. et multorum dierum circuitu Padi vada petenda fuerant, qua exercitus gravis inpedimentis traduci posset. Potiores apud me auctores sunt, qui biduo vix locum rate jungendo flumini inventum tradunt; ea cum

* Edit.

Magone equites Hispanorum expeditos præmissos. dum Hannibal, circa flumen legationibus Gallorum audiendis moratus, trajicit gravius peditum agmen, interim Mago equitesque ab transitu fluminis diei unius itinere Placentiam ad hostes contendunt. Hannibal paucis post diebus sex millia a Placentia castra communivit, et postero die, in conspectu hostium acie directa, potestatem pugnae fecit.

(B.) HORACE*, ODES, Book II, Ode IX.

Non semper imbres nubibus hispidos
Manant in agros; aut mare Caspium
Vexant inaequales procellae
Usque; nec Armeniis in oris,

Amice Valgi, stat glacies iners
Menses per omnes; aut Aquilonibus
Querceta Gargani laborant,
Et foliis viduantur orni.

Tu semper urges flebilibus modis
Mysten ademtum; nec tibi vespero
Surgente decedunt amores,
Nec rapidum fugiente Solem.

At non ter aevo functus amabilem
Ploravit omnes Antiochum senex
Annos; nec impubem parentes
Troilon, aut Phrygiae sorores

Flevere semper. Desine mollium
Tandem querelarum; et potius nova
Cantemus Augusti tropaea
Caesaris, et rigidum Niphaten;

Medumque flumen, gentibus additum
Victis, minores volvere vortices;
Intraque praescriptum Gelonos
Exiguus equitare campis.

* Edit.

(C.) HORACE*, EPISTLES, Book I. Ep. III. 9.

Quid Titius, Romana brevi venturus in ora
 Pindarici fontis qui non expalluit haustus,
 Fastidire lacus et rivos ausus apertos?
 Ut valet? ut meminit nostri? fidibusne Latinis
 Thebanos aptare modos studet, auspice Musa?
 An tragica desaevit et ampullatur in arte?
 Quid mihi Celsus agit? monitus multumque monendus,
 Privatas ut quaerat opes, et tangere vitet
 Scripta, Palatinus quaecunque recepit Apollo;
 Ne, si forte suas repetitum venerit olim
 Grex avium plumas, moveat cornicula risum
 Furtivis nudata coloribus. Ipse quid audes?
 Quae circumvolitas agilis thyma? non tibi parvum
 Ingenium, non incultum est et turpiter hirtum.
 Seu linguam causis acuis, seu civica jura
 Respondere paras, seu condis amabile carmen:
 Prima feres ederae victricis praemia. Quod si
 Frigida curarum fomenta relinquere posses,
 Quo te coelestis sapientia duceret, ires.
 Hoc opus, hoc studium parvi properemus et ampli,
 Si patriae volumus, si nobis vivere cari.
 Debes hoc etiam rescribere, si tibi curae,
 Quantae conveniat, Munatius; an male sarta
 Gratia nequidquam coit et rescinditur? At, vos
 Seu calidus sanguis seu rerum inscitia vexat
 Indomita cervice feros, ubicunque locorum
 Vivitis, indigni fraternalium rumpere foedus,
 Pascitur in vestrum reditum votiva juvenca.

1. What parts of the History of Livy have been lost? Why is it probable that the whole of it was extant as late as the 12th century? To whom, and for what reasons, are the epitomes of the books of Livy ascribed?

2. In what year, and in whose consulship, did the first Punic war commence? How long did it last? Mention the

* Edit.

principal events in it. Trace Hannibal's march from Saguntum to the Trebia, and give the modern names of Agrigentum, Tarentum, Trebia, Cumæ and Zama.

3. Mention the principal Roman Satirists from Lucilius to Juvenal. Explain the difference between the Roman Satire and the Greek Satyric Drama. Give the divisions of the Roman As, and explain—"hæres ex asse—hæres ex dodrante—fœnus ex quadrante factum est bessibus."

4. What is the force of the participle in *rus* with a perfect infinitive? Translate accurately, "I understand that he would have written." What is the difference in meaning between the perfect and imperfect subjunctive, and between "Socrates *solitus est dicere*" and "Socrates *solebat dicere*"?

CANDIDATES WHO PASSED THE EXAMINATION.

First Division.

Colleges, &c.

BAGSHAW, WILLIAM HENRY GUNNING	St. Mary's, Oscott.
BAYNES, JOSEPH ASH	Stepney.
BEEVOR, THOMAS	University.
BROWNE, JOHN	University.
CHAMPION, WILLIAM JAMES	University.
CHARLTON, JOHN MOON	Highbury.
COOPER, BASIL HENRY	Highbury.
COWBURN, JOHN	Stourport Grammar School.
CRAIG, JAMES	Belfast R. Acad. Institution.
CREAK, ALBERT	Spring Hill.
CREWE, MICHAEL	St. Mary's, Oscott.
CROWLEY, ALFRED	University.
EDKINS, JAMES	Spring Hill.
FARRER, WILLIAM	Homerton.
FISON, THOMAS	University.
GOWRING, GEORGE JAMES	Mr. Gowing's School, Finchley.
GREEN, SAMUEL GOSNELL	Stepney.
HALLEY, ALEXANDER JOHN	University.
HENSLEY, FREDERICK JOHN	King's.
HOPKINS, HENRY GEORGE	St. Mary's, Oscott.
LEWIS, BUNNELL	University.
MILLARD, JAMES HENRY	Stepney.
PIGG, JOSEPH GAGE	Highbury.
RICHARDS, JOSEPH	Highbury.
SIBLY, THOMAS	Bristol.
SPENCER, JOSEPH ANTHONY	University.
SWARBRICK, JAMES	St. Cuthbert's, Ushaw.
TAYLOR, RUSSELL SCOTT	Manchester (New).
THOMPSON, GEORGE	Stonyhurst.
WEEKS, EDWARD HENRY	Cheshunt.
WILLIAMS, THOMAS	Stonyhurst.
WRIGHT, JOHN	Manchester (New).
YOUNG, WILLIAM	Cheshunt.

Second Division.

BAINBRIDGE, WILLIAM	King's.
BANKART, FREDERICK	Camberwell Collegiate School.
BLACKETT, JOSEPH BYRON	Stonyhurst.

Colleges, &c.

BOMPAS, JOSEPH CARPENTER	Bristol.
BRADLEY, SAMUEL	Private tuition.
BRADY, FRANCIS WILLIAM	University.
BUCK, JOHN DAWSON	Highbury.
CAHILL, PATRICK ..	Carlow.
CARR, JOHN RODHAM	Manchester (New).
CHRISTOPHERSON, HENRY	Stepney.
DUNCAN, PETER MARTIN	Coll. of Morav ⁿ Brothers at Lausanne.
DUNLOP, JOHN	University.
DURANT, WILLIAM FRIEND	Private tuition.
EDKINS, JOSEPH	University.
FLETCHER, ROBERT	Dr. Day's School, Bristol.
HOWE, EDWARD	St. Mary's, Oscott.
HOWELL, JOSEPH	Stonyhurst.
KING, JOHN BOUGHEN	Highbury.
KINGDON, CHARLES FREDERICK ..	Private tuition.
LEWIS, WALTER CLAPHAM	University.
MARTEN, ROBERT HUMPHREY	Stepney.
O'DONOVAN, ALEXANDER	Carlow.
RYMER, FREDERICK	St. Edmund's.
SHERLEY, EDWARD	Cheshunt.
SMITH, GUSTAVUS WEBB	University.
SMITH, JAMES	University.
SMITH, WILLIAM	University.
SPICER, THOMAS TREVETHAN	University.
STRICKLAND, WILLIAM	Stonyhurst.
ULLATHORNE, THOMAS ..	Stonyhurst.
VRIGNON, HENRY	St. Gregory's, Downside.

EXAMINATIONS FOR HONOURS.

MATHEMATICS AND NATURAL PHILOSOPHY.

Arranged in the order of proficiency.

	Colleges.
SPENCER, JOSEPH ANTHONY..(<i>Exhibition</i>)...	University.
{ GREEN, SAMUEL GOSNELL.....	Stepney.
{ TAYLOR, RUSSELL SCOTT.....	Manchester (New).
BAYNES, JOSEPH ASH.....	Stepney.
RYMER, FREDERICK	St. Edmund's.

CHEMISTRY.

No Candidate.

NATURAL HISTORY.

Botany.

No Candidate.

*Zoology.*BAYNES, JOSEPH ASH ...(*Prize of Books*) ... Stepney.

CLASSICS.

Arranged in the order of proficiency.

LEWIS, BUNNELL ...(<i>Exhibition</i>)	University.
BAYNES, JOSEPH ASH.....	Stepney.
{ BEEVOR, THOMAS	University.
{ GREEN, SAMUEL GOSNELL	Stepney.

RICHARD AND JOHN E. TAYLOR,
PRINTERS TO THE UNIVERSITY OF LONDON,
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UNIVERSITY OF LONDON.

EXAMINATIONS

FOR THE DEGREE OF

BACHELOR OF MEDICINE

IN THE YEAR 1841.

LONDON:

SOLD BY RICHARD AND JOHN E. TAYLOR,

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1841.

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EXAMINERS.

Anatomy and Physiology.

FRANCIS KIERNAN, F.R.S.
Professor SHARPEY, M.D., F.R.S.

Chemistry.

Professor DANIELL, F.R.S.

Botany.

Rev. Professor HENSLOW.

Materia Medica and Pharmacy.

JONATHAN PEREIRA, M.D., F.R.S.

EXHIBITIONERS AND MEDALISTS.

Anatomy and Physiology.

1839. No Exhibition or Medal awarded.
1840. EDMUND PARKES.—Exhibition and Gold Medal.
GEORGE MURRAY HUMPHRY.—Gold Medal.
1841. EDWARD BALLARD.—Exhibition and Gold Medal.
THOMAS PATRICK MATTHEW.—Gold Medal.

Chemistry.

1839. No Exhibition or Medal awarded.
1840. EDMUND PARKES.—Exhibition and Gold Medal.
1841. EDWARD BALLARD.—Exhibition and Gold Medal.
JOSEPH JOHN FOX.—Gold Medal.

Materia Medica and Pharmacy.

1839. No Exhibition or Medal awarded.
1840. EDMUND PARKES.—Gold Medal.
1841. THOMAS INMAN.—Exhibition and Gold Medal.
JOHN JONES DAVIES.—Gold Medal.

FIRST EXAMINATION.

PASS EXAMINATION.

MONDAY, July 5.—MORNING, 10 to 1.

ANATOMY AND PHYSIOLOGY.

Examiners, Mr. KIERNAN and Prof. SHARPEY.

1. DESCRIBE briefly the Atlas and Vertebra Dentata, the mode of ossification of these bones, and their articulations with each other and with the skull. State the movements of which the joints in question are susceptible, and the muscles by which they are effected.

2. Describe the dissection required to show the course and distribution of the Axillary Artery; mentioning the parts cut through or exposed in the order they are met with, and describing the artery and its branches with their relations to the adjacent parts.

3. The skin being removed to the extent of four inches above, and to the same extent below the knee, at the posterior surface of the limb, describe the parts brought into view in the order in which they present themselves in proceeding with the dissection from the integuments to the bones.

4. Describe the surfaces of the Cerebellum, Tuber Annulare and Medulla Oblongata, and the cavity of the Fourth Ventricle. (The nerves not required.)

5. Describe the form, situation, connexions and structure of the Pancreas, and state generally the nature of its secretion.

6. Give the structure and chemical composition of the Osseous Tissue.

MONDAY, July 5.—AFTERNOON, 3 to 6.

ANATOMY AND PHYSIOLOGY.

Examiners, Mr. KIERNAN and Prof. SHARPEY.

1. The Os Innominatum, and the muscles, nerves, vessels and fasciæ of the same side being removed, describe the pelvic viscera in the male as they are seen *in situ*; and the Bladder and Rectum being turned aside, describe the parts which lie between them and the bones in the order in which they are met with in dissecting from within outwards.

2. Describe the parts successively brought into view in dissecting a portion of the back, limited above and below by the first and eighth pairs of ribs, and laterally by the bases of the Scapulæ. The dissection to be carried as deep as the surface of the ribs and intercostal muscles.

3. Describe the structure of the Bronchial Tubes and Lungs. Do these structures take any, and if any, what, share in the production of the respiratory movements? Enumerate the respiratory nerves, mention the muscles to which they are severally distributed, and the effects on the respiratory movements of injuries, whether accidental or experimental, of different parts of the cerebro-spinal axis.

4. Describe the Tympanum as it appears in the skeleton.

5. Describe the intimate structure of a Nerve, a Plexus and a Ganglion.

TUESDAY, July 6.—MORNING, 10 to 1.

CHEMISTRY.

Examiner, Prof. DANIELL.

1. Two Solutions will be placed before you marked A and B. Describe and explain the changes which take place upon testing one with the other. What do the solutions contain? If any ambiguity should occur with respect to either, select some other test from those before you which will determine the point.

2. What Salt is contained in the solution marked C? The appropriate tests will be placed before you: explain the changes which take place upon their application.

3. What is the Newtonian theory of Colours? What is the experimental evidence upon which it is founded?

4. What distinction may be drawn between the temperature of a body and the heat which it contains? Refer to experiments.

5. Explain the analogy between a flash of lightning and the discharge of a Leyden jar.

6. What is the origin of the force in the Voltaic Battery? How is it accumulated?

7. What are the laws which limit the combinations of chemical affinity? Illustrate them by examples.

8. State the general views which may be taken of the constitution of salts.

9. What are the respective weights at mean pressure and temperature of 100 cubic inches of the following gases and vapours?

Hydrogen.

Carbonic Oxide.

Oxygen.

Carbonic Acid.

Nitrogen.

Ammonia.

Iodine.

Sulphurous Acid.

10. What is the general constitution of the class of bodies denominated *Ethers*? Illustrate the subject with particular examples, both by words and symbols.

TUESDAY, July 6.—AFTERNOON, 3 to 6.

STRUCTURAL AND PHYSIOLOGICAL BOTANY.—MATERIA MEDICA AND PHARMACY.

STRUCTURAL AND PHYSIOLOGICAL BOTANY.

Examiner, Rev. Prof. HENSLÖW.

1. Define the terms Cordatus, Obcordatus, Induplicatus, Trijugus.
2. Describe Pyxidium, Vittæ, and distinguish between Cotyledones accumbentes and incumbentes.
3. What are the principal kinds of Nervation in leaves?
4. Explain what are the Lacunæ, and Meatus intercellulares of the cellular tissue.
5. Upon what does the Etiolation, and the Fall of leaves depend?
6. What are the functions of the Root? and the chief phenomena attending the germination of the seed?
7. Describe the structure of the different parts of the specimens marked No. 1, 2, 3.

MATERIA MEDICA AND PHARMACY.

Examiner, Dr. PEREIRA.

1. Describe the mode of preparing Corrosive Sublimate; and explain the theory of the process. Enumerate the tests for this salt; and state how you would proceed to detect it

when mixed with Calomel. What is the nature of its chemical action on the animal tissues? What are its antidotes?

2. What is the most expeditious mode of preparing Hydrated Sesquioxide of Iron for exhibition in cases of poisoning by Arsenious acid? What reaction takes place when the former is mixed with a solution of the latter substance?

3. Give the botanical characters of *Papaver somniferum*. Mention its Linnean class and order, as well as its natural order. Describe the method of procuring Opium. Briefly state the distinguishing characteristics of Meconic Acid, of Morphia, of Narcotina, and of Codeia. Describe the effects of Opium, and point out in what respects they differ from those of other narcotics, especially Hyoscyamus. What is the immediate cause of death in poisoning by Opium? What are the principal therapeutical indications which this substance is calculated to fulfil? Mention some of the principal diseases in which it has been found serviceable, and point out what circumstances permit or forbid its use. What are the doses of solid Opium, and of *Tinctura Opii*, Ph. L.? What quantity of *Tinctura Camphoræ composita*, Ph. L., contains one grain of opium?

4. In what cases would you prefer Emetic Tartar, as a sudorific, to Dover's powder, and *vice versâ*? Under what circumstances would the latter be preferable to the former? What are the respective doses of these substances when employed to produce sweating? What means would you adopt to promote the operation of sudorific medicines?

5. What are the characteristics of good Extract of Sarsaparilla? With what substances is the *Hydrargyri Ammoniochloridum*, Ph. L., frequently adulterated? and how would you recognise their presence?

6. What is the class and order, in Cuvier's arrangement, of *Moschus moschiferus*? From what part of the animal is musk procured? What is the dose of this substance?

FRIDAY, SATURDAY, MONDAY, July 9th, 10th, and 12th.

CHEMISTRY, AND MATERIA MEDICA AND
PHARMACY.

By Vivâ Voce Interrogation, and Demonstration from Specimens.

Examiners, Prof. DANIELL and Dr. PEREIRA.

MONDAY and TUESDAY, July 12th and 13th.

ANATOMY AND PHYSIOLOGY.

By Vivâ Voce Interrogation, and Demonstration from Prepara-
tions and the recent Subject.

Examiners, Mr. KIERNAN and Prof. SHARPEY.

EXAMINATION FOR HONOURS.



THURSDAY, July 15.—MORNING, 10 to 1.

ANATOMY AND PHYSIOLOGY.

Examiners, Mr. KIERNAN and Prof. SHARPEY.

Candidates may illustrate their answers by sketching the parts they describe.

1. THE muscles of the back of the neck, the sterno-cleido-mastoidei and the vertebral column being removed from the head, describe the posterior surface of the pharynx, and the parts which lie between the pharynx and the inner surface of the ramus of the jaw, as far as the last molar tooth. The pharynx being opened at its posterior part and in its whole length, describe the parts brought into view; the description to include that of the posterior nares, the soft palate, its arches, muscles, vessels and nerves, the tonsils, the isthmus faucium, the dorsum of the tongue, its glands and papillæ, the epiglottis and its folds, the superior aperture of the larynx and its posterior surface.

2. Give an account of the several structures which enter into the formation of the skin. The answer to include a description of the glands of the skin, but not the hairs or nails.

THURSDAY, July 15.—AFTERNOON, 3 to 6.

ANATOMY AND PHYSIOLOGY.

Examiners, Mr. KIERNAN and Prof. SHARPEY.

Candidates may illustrate their answers by sketching the parts they describe.

1. Commencing the dissection at the integuments and continuing it to the anterior surface of the vertebral column, describe the parts successively met with in a portion of the neck bounded below by the upper part of the sternum and the first pair of ribs, above by a line drawn across the lower part of the cricoid cartilage, and on the sides by lines corresponding to the external margins of the *scaleni antici* muscles.

2. Describe the intimate structure of secreting glands in general, and the varieties in the intimate structure observed in different glands of the human body, giving the evidence on which any opinions you may state are founded.

FRIDAY, July 16.—MORNING, 10 to 1.

CHEMISTRY.

Examiner, Prof. DANIELL.

1. According to the atomic doctrine, is there any, and what, connexion between the atoms of bodies, and the heat and electricity which they contain?

2. Describe and explain the construction and action of Harris's unit-jar.

3. Describe and explain the construction and action of Saxton's magneto-electric machine.

4. Supposing a portion of fused chloride of lead, and an aqueous solution of sulphate of soda, to be exposed to the electrolytic force of the same voltaic current, what would be the products of their decomposition? and what proportions would they bear to each other?

5. Taking the composition of cane-sugar to be $C_{12} H_{11} O_{11}$, how must it become modified before it can be susceptible of the vinous fermentation? and what will be the products of such fermentation?

6. I have weighed a tube, containing an organic substance without nitrogen, to be analysed, and found its weight to be 51.610 grs.: having emptied it, I again weighed it, and found the weight of the tube to be 48.400 grs.

The substance thus transferred, was mixed with oxide of copper, exposed to heat, and the products collected in the usual way.

Before the experiment, Liebig's potash-apparatus weighed 453.284 grs.; afterwards, 458.223 grs.

Before the experiment, the chloride of calcium tube weighed 174.000 grs.; afterwards, 175.870 grs.

What were the proportions of the elementary constituents

of the substance analysed? What the number of the equivalents of each? What was the substance analysed?

7. State and illustrate Berzelius's doctrine of ammonium.

8. What is benzule? What is its connexion with the volatile oil of bitter almonds and benzoic acid?

9. Explain the formation of hydrocyanic acid in the bitter almond.

FRIDAY, July 16.—AFTERNOON, 3 to 6.

MATERIA MEDICA AND PHARMACEUTICAL
CHEMISTRY.

Examiner, Dr. PÉREIRA.

1. What is the per-centage strength of the *Acidum Hydrocyanicum Dilutum*, Ph. L.? What quantity of Cyanide of Silver should 100 grs. of this acid yield on the addition of a solution of Nitrate of Silver? State the characteristics of Cyanide of Silver, and how you would distinguish it from Chloride of Silver. If a sample of Diluted Hydrocyanic Acid yield a red precipitate on the addition of the Iodo-cyanide of Potassium and Mercury, what inference would you draw therefrom? State the composition of this red precipitate, and explain the chemical changes which occur during its formation under the above circumstances.

2. The bottles marked respectively A and B contain adulterated powder of Scammony: you are required to apply the appropriate tests [*which will be furnished*] in order to discover the nature of the adulterating matter in each.

3. Describe the mode of preparing the *Spiritus Ætheris Nitrici*, Ph. L.; and explain the nature of the principal changes

which occur during the process. What is the composition of this spirit? To what contaminating matter or matters do you ascribe the property usually possessed by the Spirit of Nitric Ether of the shops, of becoming olive-coloured on the addition of Protosulphate of Iron, and blue with Tincture of Guaiacum?

4. State what are the symptoms caused by a poisonous dose of Hydrocyanic Acid, and what remedial means you would have immediate recourse to in order to avert death. Describe the *post-mortem* appearances when this poison proves fatal. How would you proceed to detect its presence in the contents of the alimentary canal? Explain the nature of the chemical changes which occur on the addition of the several tests.

5. By what chemical test is the flour of White Mustard Seed distinguished from that of Black Mustard Seed?

6. Describe the effects, uses, modes of administering, and doses of *Digitalis*.

7. You are required to name the four barks labeled respectively C, D, E, and F.

8. Describe, in botanical language, *Conium maculatum*, pointing out those characters by which it is distinguished from neighbouring species.

CANDIDATES

WHO PASSED THE FIRST EXAMINATION.

[The names are arranged alphabetically.]

First Division.

	Medical Schools.
BALLARD, EDWARD.....	University College.
BEAUMONT, MATTHIAS HENRY.....	University College.
DAVIES, JOHN JONES	London Hospital.
DAVIS, JOHN HALL.....	University College.
FEARNSIDE, HENRY	University College.
FOX, JOSEPH JOHN	University College.
FRANCIS, DAYRELL JOSEPH THACKWELL	Guy's Hospital.
GARROD, ALFRED BARING.....	University College.
GULL, WILLIAM WITHEY	Guy's Hospital.
HADWEN, ARTHUR	University College.
HUDSON, JOHN.....	Leeds, and University College.
HUMBLE, WILLIAM EDWARD.....	University College.
JACOB, HENRY LONG	University College.
JENNER, WILLIAM	University College.
INMAN, THOMAS	King's College.
JOHNSON, GEORGE	King's College.
LEONARD, THOMAS.....	University College.
LETHEBY, HENRY	Aldersgate.
MATTHEW, THOMAS PATRICK	University College.
PARKER, NICHOLAS	London Hospital.
RAPER, WILLIAM AUGUSTUS.....	University College.
SAVAGE, HENRY	University College.
STEDMAN, SILAS STILWELL	University College.
SWAYNE, JOSEPH GRIFFITHS	Bristol Medical School.
TAPSON, ALFRED JOSEPH	University College.
TOPHAM, JOHN.....	University College.

Second Division.

BLAKE, JAMES	University College.
BLOMFIELD, THOMAS ALFRED	University College.
BUNCE, RICHARD.....	Bristol Medical School.
EVANS, JOHN	University College.
FRANCIS, CHARLES RICHARD.....	Middlesex Hospital.
GRAHAM, THOMAS	Middlesex Hospital.
HEARNE, EDWIN	University College.
HEATH, GEORGE YEOMAN	University College.
JONES, EVAN BURNELL	Webb Street.
JONES, THOMAS LLOYD	University College.
LANGMORE, JOHN CHARLES	London Hospital.
MARTIN, JOSEPH TELFORD	R ¹ Coll. of Surgeons in Ireland.
MAYNARD, THOMAS BROOKE ELLIOTT ...	Bristol Medical School.
MERYON, EDWARD	University College.
MOTT, CHARLES	Webb St., and Guy's Hospital.
NOYES, HENRY GEORGE	Guy's Hospital.
PADLEY, GEORGE.....	Guy's Hospital.
PALEY, WILLIAM.....	London Hospital.
RANDALL, JOHN	Aldersgate.
SMITH, HENRY.....	St. Bartholomew's Hospital.
STAPLES, CHARLES THEODORE	Mil ^y Hosp ^l at Ceylon; and Univ. Coll.
STIFF, WILLIAM PHILLIMORE	University College.
WAYTE, CHARLES MATTHEW.....	Bristol Medical School.
WILLIAMS, WILLIAM HENRY.....	University College.

EXAMINATION FOR HONOURS.

[The names are arranged in the order of proficiency.]

Anatomy and Physiology.

BALLARD, EDWARD...	{ <i>Exhibition and</i> <i>Gold Medal</i> }	... University College.
MATTHEW, THOMAS PATRICK	(<i>Gold Medal</i>)	University College.
TAPSON, ALFRED JOSEPH	.....	University College.
STEDMAN, SILAS STILWELL	.....	University College.
INMAN, THOMAS	.....	King's College.
DAVIES, JOHN JONES	.....	London Hospital.
FOX, JOSEPH JOHN	.....	University College.
SWAYNE, JOSEPH GRIFFITHS	.....	Bristol Medical School.

Chemistry.

BALLARD, EDWARD...	{ <i>Exhibition and</i> <i>Gold Medal</i> }	... University College.
FOX, JOSEPH JOHN...	(<i>Gold Medal</i>)	..... University College.
INMAN, THOMAS	.....	King's College.
HUMBLE, WILLIAM EDWARD	.....	University College.

Materia Medica and Pharmaceutical Chemistry.

INMAN, THOMAS	(<i>Exhibition and Gold Medal</i>)	King's College.
DAVIES, JOHN JONES...	(<i>Gold Medal</i>)	..... London Hospital.
TAPSON, ALFRED JOSEPH	University College.
HUMBLE, WILLIAM EDWARD	University College.

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PRINTERS TO THE UNIVERSITY OF LONDON,
RED LION COURT, FLEET STREET.

SECOND EXAMINATION.

EXAMINERS.

Physiology and Comparative Anatomy.

P. M. ROGET, M.D., Sec. R.S.

Surgery.

JOHN BACOT, Esq.

SIR STEPHEN LOVE HAMMICK, Bart.

Medicine.

ARCHIBALD BILLING, M.D.

ALEXANDER TWEEDIE, M.D., F.R.S.

Midwifery.

EDWARD RIGBY, M.D.

Forensic Medicine.

EDWARD RIGBY, M.D.

Professor DANIELL, F.R.S.

JONATHAN PEREIRA, M.D., F.R.S.

Structural and Physiological Botany.

Rev. Professor HENSLOW.

UNIVERSITY MEDICAL SCHOLARS, AND
MEDALLISTS.

Physiology and Comparative Anatomy.

1840. RICHARD QUAIN.—Scholarship and Gold Medal.
JOHN PADDON.—Gold Medal.
1841. JOHN PHILIPS POTTER.—Scholarship and Gold Medal.
EDMUND ALEXANDER PARKES.—Gold Medal.

Surgery.

1840. JOHN CHARLES BUCKNILL.—Gold Medal.
1841. JOHN PHILIPS POTTER.—Scholarship and Gold Medal.

Medicine.

1840. THOMAS O'MEARA.—Scholarship and Gold Medal.
JOHN DOUGLAS STRANG.—Gold Medal.
1841. CHAS. BRODIE SEWELL.—Scholarship & Gold Medal.
DAYRELL JOS. THACKWELL FRANCIS.—Gold Medal.

Midwifery.

1840. JOHN DOUGLAS STRANG.—Gold Medal.
1841. WILLIAM WAY.—Gold Medal.

Structural and Physiological Botany.

1840. No Medal awarded.
1841. JOHN DEAKIN HEATON.—Gold Medal.

SECOND EXAMINATION.

PASS EXAMINATION.

MONDAY, November 1.—MORNING, 10 to 1.

PHYSIOLOGY AND COMPARATIVE ANATOMY.

Examiner, Dr. ROGET.

1. DESCRIBE the structure, and specify the functions of the Skin.

2. What are the functions of the Large Intestines; what general differences are observable in those of carnivorous, and of herbivorous animals; and what peculiarities of structure exist in those of the Horse, the Hare, the Crocodile, and the Shark?

3. What are the resistances opposed to the motion of the blood in the course of its circulation through the arterial and venous systems? What constitutes the Pulse; and why is there no pulsation in the veins?

4. Give a detailed account of the mode in which images of external objects are formed on the Retina; and point out the uses of the Iris, and of the Pigmentum Nigrum.

5. What constitutes the essential difference between the mode of circulation in the Mollusca, and that in Fishes; and what are the structures peculiar to the circulating system of the Cephalopoda?

6. Give a general account of Vibrating Cilia, of their form, magnitude and functions, and of the situations in which they are met with in different tribes of Animals.

MONDAY, November 1.—AFTERNOON, 3 to 6.

CELSUS DE RE MEDICA.

Examiners, Dr. BILLING and Dr. TWEEDIE.

Et febrium quidem ratio maxime talis est. Curationum vero diversa genera sunt, prout auctores aliquos habent. Asclepiades officium esse medici dicit, ut tuto, ut celeriter, ut jucunde curet. Id votum est: sed fere periculosa esse nimia et festinatio et voluptas solet. Qua vero moderatione utendum sit, ut, quantum fieri potest, omnia ista contingant, prima semper habita salute, in ipsis partibus curationum considerandum erit. Et ante omnia quæritur, primis diebus æger qua ratione continendus sit. Antiqui, medicamentis quibusdam datis, concoctionem moliebantur; eo quod cruditatem maxime horrebant: deinde eam materiam, quæ lædere videbatur, ducendo sæpius alvum subtrahebant. Asclepiades medicamenta sustulit; alvum non toties, sed fere tamen in omni morbo, subduxit; febre vero ipsa præcipue se ad remedium uti professus est. Convellendas enim vires ægri putavit, luce, vigilia, siti ingenti, sic, ut ne os quidem primis diebus clui sineret. Quo magis falluntur, qui per omnia jucundam ejus disciplinam esse concipiunt. Is enim ulterioribus quidem diebus cubantis etiam luxuriæ subscripsit; primis vero tortoris vicem exhibuit. Ego autem, medicamentorum dari potiones, et alvum duci non nisi raro debere, concedo: et id non ideo tamen agendum, ut ægri vires convellantur, existimo; quoniam ex imbecillitate summum periculum est. Minui ergo tantum materiam superantem oportet, quæ naturaliter digeritur, ubi nihil novi accedit. Itaque abstinentius a cibo primis diebus est, in luce habendus æger, nisi in-

firmus, interdiu est, quoniam corpus ista quoque digerit; isque cubare quam maximo conclavi debet. Quod ad sitim vero somnumque pertinet, moderandum est, ut interdiu vigilet; noctu, si fieri potest, conquiescat: ac neque potet, neque nimium siti crucietur. Os etiam ejus elui potest, ubi et siccum est, et ipsi foetet; quamvis id tempus aptum potioni non est. Commodèque Erasistratus dixit, sæpe, interiore parte humorem non requirente, os et fauces requirere; neque ad rem, male haberi ægrum, pertinere. Ac primo quidem sic tenendus est. (Lib. III. cap. iv.)

Ignotus autem pæne in Italia, frequentissimus in quibusdam regionibus is morbus est, quem *ἐλεφαντίασιον* Græci vocant: isque longis adnumeratur. Totum corpus afficitur ita, ut ossa quoque vitari dicantur. Summa pars corporis crebras maculas crebrosque tumores habet: rubor earum paulatim in atrum colorem convertitur; summa cutis inæqualiter crassa, tenuis, dura, mollisque, quasi squamis quibusdam exasperatur; corpus emacrescit, os, suræ, pedes intumescunt: ubi vetus morbus est, digiti in manibus pedibusque sub tumore conduntur, febricula oritur, quæ facile tot malis obrutum hominem consumit. Protinus ergo inter initia sanguis per biduum mitti debet, aut nigro veratro venter solvi: adhibenda tum, quanta sustineri potest, inedia est: paulum deinde vires reficiendæ, et ducenda alvus: post hæc, ubi corpus levatum est, utendum est exercitatione, præcipueque cursu: sudor primum labore ipsius corporis, deinde etiam siccis sudationibus evocandus: frictio adhibenda: moderandumque inter hæc, ut vires conserventur. Balneum rarum esse debet; cibus sine pinguibus, sine glutinosis, sine inflantibus: vinum, præter quam primis diebus, recte datur. Corpus contrita plantago et illita optime tueri videtur. (Lib. III. cap. xxv.)

Ex quocunque autem morbo quis convalescit, si tarde confirmatur, vigilare prima luce debet; nihilominus in lecto conquiescere: circa tertiam horam leniter unctis manibus corpus permulcere: deinde delectationis causa, quantum juvat, ambulare, circumcisa omni negotiosa actione: tum gestari diu: multa frictione uti: loca, cælum, cibos sæpe mutare: ubi

triduo quadriduove vinum bibit, uno aut etiam altero die interponere aquam. Per hæc enim fiet, ne in vitia tabem inferentia incidat, et ut mature vires suas recipiat. Cum vero ex toto convaluerit, periculose vitæ genus subito mutabit, et inordinate aget. Paulatim ergo debebit, omissis his legibus, eo transire, ut arbitrio suo vivat. (Lib. IV. cap. xxv.)

TUESDAY, November 2.—MORNING, 10 to 1.

SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

1. What are the appearances and symptoms, which would make you decide, whether the inflammation attendant on a recent wound, be of the common acute, or erysipelalous kind? Enumerate those wounds caused by external violence, in which Erysipelas is likely to come on.

2. Give the mode of treatment, both local and general, of a recent incised wound, two inches in length, a little to the right side of, and parallel to the umbilicus, opening into the cavity of the abdomen, with a portion of the omentum and small intestines protruding.

3. Describe the different dislocations of the ankle-joint,—how they are detected, the appearances of the limb, and the mode of reduction of each respectively.

4. Enumerate the different methods of amputating a thigh at its middle third: state which you would prefer, with your reasons: give the subsequent treatment, including the mode of dressing, the method of bandaging, the position of the stump, and the management of the ligatures, especially where they are retained beyond the usual time.

TUESDAY, November 2.—AFTERNOON, 3 to 6.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. Describe the anatomical characters, and the effects of inflammation in mucous membranes.

2. What is the nature of the affection called Laryngismus Stridulus? How is it distinguished from Croup? At what period of life does it occur? Describe a paroxysm, and give an outline of the treatment.

3. Detail the symptoms and physical signs of the first or early stage of tuberculous disease of the lung: describe its anatomical characters: and state the changes which take place in the pulmonary tissue in the progress of phthisis.

4. Describe the lesion in the alimentary canal most frequently observed in continued fever. Mention its pathognomonic symptoms and terminations.

5. To what order in the classification of cutaneous diseases does Eczema belong? Enumerate its varieties. Sketch the characters and treatment of Eczema Rubrum.

6. Describe the anatomical characters of Endo-carditis. How is it recognised? What are its more common effects?

WEDNESDAY, November 3.—MORNING, 10 to 1.

MIDWIFERY.

Examiner, Dr. RIGBY.

1. Enumerate those signs of Pregnancy which are considered as *certain* indications of this condition.
2. What are the symptoms which indicate the death of the child before and during Labour?
3. Enumerate the symptoms of commencing Labour.
4. What are the indications for applying the forceps?
5. What are the causes of Hæmorrhage before and after Labour?
6. Enumerate the various means for stopping Hæmorrhage from uncontracted uterus after the birth of the child.
7. What are the circumstances disclosed by vaginal examination during Labour where the promontory of the sacrum projects too much?
8. What are the symptoms and causes of Prolapsus Uteri?

WEDNESDAY, November 3.—AFTERNOON, 3 to 6.

FORENSIC MEDICINE.

Examiners, Prof. DANIELL, Dr. PEREIRA, and Dr. RIGBY.

1. In a suspected case of poisoning, a witness gives evidence that he has examined the contents of the stomach of the deceased person, and that he has detected small quantities of arsenic by the tests of Sulphuretted Hydrogen, Sulphate of Copper, and Nitrate of Silver; and that he has applied no other tests: What objections would the counsel for the accused person probably make to such evidence?

2. What are the sources from which the atmosphere might probably become contaminated by Sulphuretted Hydrogen? How might its existence be determined? and what would be the best method of counteracting its injurious effects?

3. What are the symptoms of poisoning by Cantharides? With what diseases might this accident be confounded, and by what circumstances would you distinguish it? How would you proceed to discover whether Porter had been impregnated with these insects?

4. In the case of a body found in the water, by what circumstances would you determine whether death had occurred antecedent to, or had been produced by, submersion?

5. What are the symptoms of poisoning by *Digitalis*? What remedial means would you resort to in an accident of this kind?

6. What will be the diagnosis afforded by vaginal examination of a patient, not pregnant, as to whether she has pro-

viously borne children or not; and what will it be in the case of one who is pregnant?

7. What are the signs of recent delivery as elicited by examination during life, and by dissection after death; and on what grounds would you form your opinion as to the duration of time which has elapsed since delivery?

8. A new-born child is found dead with suspicious marks round its neck, which the mother attributes to the cord having been twisted round the neck and drawn tight at the moment of birth. State your plan of investigation, and the circumstances which would lead you to decide for or against the mother being guilty of child-murder.

MONDAY, November 8.—MORNING, at 10.

EXAMINATION IN ALL THE PRECEDING
SUBJECTS.

By *Vivâ Voce* Interrogation.

By all the Examiners.

EXAMINATION FOR HONOURS.

TUESDAY, November 16.—MORNING, 10 to 1.

PHYSIOLOGY AND COMPARATIVE ANATOMY.

Examiner, Dr. ROGET.

1. POINT out the characters by which Muscular Irritability is distinguished from the Contractility of Cellular and Membranous tissues.
2. What purposes are answered by the partial decussation of the Optic Nerves?
3. Describe generally the situation and structure of the Organs of Smell in Fishes.
4. Specify the peculiarities observable in the skeleton of the Ostrich, when compared with that of Birds in general.
5. Give a general account of the organs and the course of circulation in the Annelida; and describe particularly those of the *Lumbricus terrestris*.

TUESDAY, November 16.—AFTERNOON, 3 to 6.

PHYSIOLOGY AND COMPARATIVE ANATOMY.

Examiner, Dr. ROGET.

1. Do the Arteries exert a muscular power? State the arguments on both sides of this question.
2. Describe and explain the phenomena of Ocular Spectra.
3. Give a general account of the anatomy of Ascidiaë, both simple and aggregated; and state the peculiar circumstances which have been observed in the circulation and respiration of this tribe of animals.
4. Describe the spinal column of the Myxine; and point out the particulars in which its structure differs from that of other Fishes.
5. Explain the changes of colour observable in the skin of the Chameleon.

WEDNESDAY, November 17.—MORNING, 10 to 1.

SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

State the condition of the Artery, in a case of Popliteal Aneurism, in its incipient and advanced stages; and enter fully into the comparative merits of the old and new method of operating; mention the symptoms favorable or unfavorable to an operation; describe at length the course of the circulation after the femoral artery has been tied: supposing the case will admit of delay, is it desirable to wait any, and what time, after the discovery of the disease, or to proceed at once to the operation? Give the grounds for your opinion; enumerate the various ways in which an operation may fail; and describe more particularly the method of contending with hæmorrhage in consequence of the artery giving way at the place of the ligature; or where gangrene has come on in the lower limb; or where the aneurismal Tumour has become considerably enlarged and diseased, subsequent to the operation: illustrate your observations, with the detail, treatment, and termination of any cases of Popliteal Aneurism which you may have seen.

WEDNESDAY, November 17.—AFTERNOON, 3 to 6.

SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

Let the space, from the Chin to the Sternum, be divided into three portions, viz. the upper or muscular; the middle or cartilaginous; and the lower or tracheal: describe minutely the various injuries, which may be inflicted, on each of these divisions, by persons attempting self-destruction, either by sharp-cutting, lacerating or puncturing instruments: enumerate the parts, which may be divided, either anteriorly or laterally: give the treatment to be pursued, in restraining the Hæmorrhage, the methods of closing and dressing, together with the position of the wounds; with the general management of the patient, following up each case from stage to stage, either to a successful or fatal termination, with the reasons for the different steps of your practice: detail the appearances, symptoms, treatment and result of any wounds on the throat or neck, which may have fallen within your observation.

THURSDAY, November 18.—MORNING, 10 to 1.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. Explain the pathology of spontaneous Hæmorrhages; mentioning, 1. the conditions of the system under which hæmorrhages occur; 2. the modes by which the blood escapes from the vessels; 3. the effects of hæmorrhage, local and constitutional.

2. Detail the anatomical characters of Inflammation of the Substance of the Brain, including a description of its terminations or effects on the cerebral structure.

3. Describe the structural diseases of the Bronchial Tubes: give the causes and physical signs of each lesion.

THURSDAY, November 18.—AFTERNOON, 3 to 6.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. Enumerate the morbid conditions of the Urine, and the signs, physical or chemical, by which they are recognised. Explain their pathology, specifying the diseases, primary or secondary, on which they depend.

2. Describe the principal forms of morbid structure generally included under the term *Dropsy of the Ovary*. Detail the constitutional and local symptoms, more especially with reference to diagnosis.

3. Describe the anatomical characters of granular degeneration of the Liver, or Cirrhosis. State the opinions entertained of the nature of this lesion. What are its consequences?

FRIDAY, November 19.—MORNING, 10 to 1.

MIDWIFERY.

Examiner, Dr. RIGBY.

1. Describe the points of difference between the gravid and unimpregnated Uterus as ascertained by vaginal examination, and how we are to distinguish between the uterus pregnant for the first time and that which is not.

2. Enumerate the causes, symptoms and varieties of Rupture of the Uterus.

3. Describe the different Sounds as elicited by auscultation during pregnancy.

4. Enumerate the different species and causes of deformed Pelvis.

5. Enumerate the causes of Inertia Uteri after the expulsion of the child.

6. What are the causes and treatment of Puerperal Convulsions?

7. In cases of Placenta prævia, where the hæmorrhage is very profuse, and where the os uteri is but little dilated, what treatment would you adopt?

8. What is the diagnosis between Prolapsus and Inversion of the uterus?

FRIDAY, November 19.—AFTERNOON, 3 to 6.

STRUCTURAL AND PHYSIOLOGICAL
BOTANY.

Examiner, Rev. Prof. HENSLOW.

1. Sketch the principal forms of *Æstivation*, and describe them.
2. Define the three modifications in the structure of ovules, termed *Orthotropous*, *Campulitropous*, *Anatropous*.
3. Explain the difference between a *Centrifugal* and *Centripetal* Inflorescence.
4. What are the principal modifications in the Flowers of *Leguminosæ*; and those which are characteristic of the four Suborders of this family?
5. Describe the more general and important characters of the Fruit of *Umbelliferæ*, *Euphorbiaceæ* and *Liliaceæ*.
6. What peculiarity is observable in the structure of *Coniferous* wood?
7. From what source do plants obtain their Carbon, and how is it assimilated?
8. What essential purpose does *Liebig* suppose the absorption of alkaline materials to serve in vegetation?
9. Explain the modes in which such parasites as the *Mistletoe* (*Viscum album*) and *Broom-rape* (*Orobanche major*) are respectively nourished.

CANDIDATES.

The following is a list of the Candidates who passed the
SECOND EXAMINATION, and consequently received the De-
gree of BACHELOR OF MEDICINE.

The names are arranged alphabetically.

First Division.

	Medical Schools, &c.
BLAKE, JAMES	University College.
CARLILL, JOHN BURFORD	University College.
FRANCIS, DAYRELL JOSEPH THACKWELL...	Guy's Hospital.
GULL, WILLIAM WITHEY	Guy's Hospital.
HEATON, JOHN DEAKIN.....	Leeds, and Univ. Coll.
MILLER, WILLIAM ALLEN	King's College.
NEVINS, JOHN BIRKBECK	Leeds, Guy's, and C ^o Dublin Hosp ^{ls} .
NOYES, HENRY GEORGE.....	Guy's Hospital.
PALEY, WILLIAM	London Hospital.
PARKES, EDMUND ALEXANDER.....	University College.
POTTER, JOHN PHILIPS	University College.
SAVAGE, HENRY.....	University College.
SEWELL, CHARLES BRODIE	University College.
SMITH, EDWARD.....	Birmingham, and Paris.
WAY, WILLIAM	University College.

Second Division.

BATESON, HENRY	Guy's Hospital.
MERYON, EDWARD	University College.
POWELL, JAMES	University College.

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UNIVERSITY OF LONDON.

EXAMINATION

FOR THE DEGREE OF

DOCTOR OF MEDICINE

IN THE YEAR 1841.

LONDON:

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1841.

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Candidates admitted to the M.D. Degree	21

EXAMINERS.



*Elements of Intellectual Philosophy, Logic, and
Moral Philosophy.*

REV. DR. JERRARD.

T. B. BURCHAM, Esq., M.A.

Surgery.

JOHN BACOT, Esq.

SIR STEPHEN LOVE HAMMICK, Bart.

Medicine.

ARCHIBALD BILLING, M.D.

ALEXANDER TWEEDIE, M.D., F.R.S.

Midwifery.

EDWARD RIGBY, M.D.

GOLD MEDALS, AND CERTIFICATES OF
SPECIAL PROFICIENCY.



GOLD MEDALS.

For a Commentary on a Case in Medicine.

1839. JOHN TAYLOR Medical Schools, &c.
University College.

In Medicine.

1841. FREDERICK WM. MACKENZIE . University College.

In Midwifery.

1841. JONATHAN MASON WADDY .. Guy's & St. Thomas's.

CERTIFICATES OF SPECIAL PROFICIENCY.

In Medicine.

1839. JOHN TAYLOR University College.

1841. WILLIAM MARTEN COOKE ... Webb Street.

FREDERICK WM. MACKENZIE University College.

PASS EXAMINATION.

MONDAY, November 22.—MORNING, 10 to 1.

ELEMENTS OF INTELLECTUAL PHILOSOPHY, LOGIC, AND MORAL PHILOSOPHY.*

Examiner, Rev. Dr. JERRARD.

1. WHAT are the reasons assigned by Bacon for the slow progress of Natural Philosophy among the Ancients? Explain, and illustrate, by any example, the true system of the Interpretation of Nature.

2. How is *probable* evidence essentially distinguished from *demonstrative*? In what respects does demonstrative knowledge differ from *intuitive*?

3. How do we get the idea of Infinity? Is that idea positive or negative? To what things only are the terms *finite* and *infinite* primarily attributed? Is Locke's theory of Personal Identity open to any valid objection?

4. What arguments, from Analogy, in favour of a future state of existence are brought forward by Butler? And how

* The following Works have been selected for the Examination in Logic, Moral, and Intellectual Philosophy, for the Degree of DOCTOR OF MEDICINE in the year 1842:

Logic.—Bacon's *Novum Organum*, Part I.

Philosophy of the Mind.—Cousin's Analysis of Locke's Essay (being the 3rd volume of his *Cours de Philosophie*).

Moral Philosophy.—Butler's *Analogy*, Part I. Stewart's *Outlines of Moral Philosophy*.

does he answer the objections made to his reasoning on this subject? When we speak of the present system of things as *natural*, what is the only distinct meaning which we can give to that word?

5. How does it appear probable, from the Analogy of Nature, that the present life is intended to be a state of Moral Discipline?

Examiner, Mr. BURCHAM.

1. Are there any grounds for Cousin's objection that Locke confounds consciousness with reflection? What is the distinction usually made between these faculties? Give any arguments for or against the assertion that a cognition and the consciousness of a cognition are one and the same thing.

2. Why can we have no idea of the *place* of the universe? How would you define place, according to Locke's doctrine respecting *space* and *body*? Show, from any passage in Locke's Essay, that he could not have confounded the two latter ideas.

3. Are the notions which we annex to the words *matter* and *mind* absolute or relative? What does Locke mean when he says, 'Number gives us the clearest idea of infinity'? Give Cousin's argument against him on this point, and point out its fallacy.

4. Mention the *active principles* enumerated by Stewart. Which does he term *Instinctive Propensities*, and which *rational principles of action*? What is meant by *Active Powers*, as contrasted or connected with *Intellectual Powers*? By what circumstances are our appetites distinguished from our other principles of action?

5. In what does Clarke make virtue to consist? Show that in his system it is presupposed as an object of moral sentiment. How, and to what extent, does reason influence our moral approbation and disapprobation?

MONDAY, November 22.—AFTERNOON, 3 to 6.

COMMENTARY ON A CASE IN MEDICINE,
SURGERY, OR MIDWIFERY.
CELSUS, *DE RE MEDICA*.

CASE IN MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

A woman, 48 years of age, gave the following history on the 6th October. About twelve months previously, her health began to decline: her digestion was often attended with pain, and though she did not vomit, the food was frequently disliked: the bowels were seldom relieved except by the aid of injections. Her ailment, however, did not prevent her following her ordinary avocations. On the 20th September, the abdomen became painful and inflated, and, on the following day, the bowels obstinately constipated, notwithstanding the repeated employment of injections, which were returned as soon as administered, without bringing away any feculent matter. When she applied for advice, her countenance was pale, her features sharp, and there was general pain over the abdomen, more severe in the right flank, and increased on pressure. The abdomen was more distended and tympanitic: vomiting came on for the first time during the night: the tongue was of natural appearance, and flatus was frequently expelled from the stomach, but none from the bowels. There had been no stool for the preceding seven or eight days: the breathing was hurried, the pulse small and frequent, but the skin was cool. These symptoms continued unabated for the next three days, when the distention of the

abdomen still increased, the breathing became more quick, the pulse small and thready, and the extremities cold. She expired in the evening.

What was the nature of this disease? What morbid appearances would you expect to find after death? What treatment would you have adopted?

CASE IN SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

Comment on the following case of Surgery from Mr. Potts's Treatise on Injuries of the Head, and contrast it with the practice and opinions of the present day.

“ A bricklayer's labourer was knocked down by the fall of a large heavy pantile, which made a large wound in the scalp and broke the skull; the fracture began in the left parietal bone, and traversing the coronal suture, ran about an inch in the os frontale.

“ He was soon brought to the hospital, where the scalp was immediately removed, so as to make way for the trephine, which instrument was applied on each side of the suture, in such manner as to comprehend the fracture in each application of it.

“ The dura mater was found to be uninjured; there was neither extravasation, nor any other mark of mischief. The patient was freely and repeatedly let blood, kept to a proper regimen, and prescribed for by the physician; in two months he was discharged perfectly well, and had not during his cure one single bad symptom.

“ It may very reasonably be remarked, that this was one of those cases which would have done well without the operation, which I am much inclined to believe; but does not this case, as well as many others, prove also, that the laying bare the uninjured dura mater is not a matter of such hazard as some have supposed it to be?”

CASE IN MIDWIFERY.

Examiner, Dr. RIGBY.

R. Y. æt. 23, 2nd child. A small, stunted, red-haired, mean-featured woman.

November 11, 1838. Had been in pains for some time before I was sent for. Liquor amnii escaped six hours ago. Pains moderate: is fretful and childish: complains only of her back.

On examination per vaginam, the os uteri is fully dilated; the pelvis is very narrow, the sacrum very straight, and the promontory not more than $2\frac{3}{4}$ inches from the symphysis pubis. The inclination of the pelvis is very considerable, so that the outlet looks nearly downwards. The head is resting loosely on the brim, and a small swelling of the scalp has taken place in the most depending part.

Fifteen months ago she was delivered by perforation, and with some difficulty. I determined to perforate in the present instance: the bowels had been relieved a few hours previously, and I emptied the bladder of the small quantity of urine which it contained. I perforated the head at that part which corresponded to the centre of the brim of the pelvis; it was very thick and hard. I introduced an elastic tube to the base of the brain, and, throwing up a powerful stream of warm water, dislodged and broke up the brain, which came away readily. I endeavoured to hook down the head with my finger, but it advanced very little; still however the bones continued to collapse: the blunt hook brought it down into the cavity of the pelvis, but as the advance was exceedingly slow I applied the forceps: the blades passed with perfect ease in the transverse diameter. By holding the handles in my right hand, and pulling the blades backwards with the left, I brought the head down, and delivered her of a moderate-sized child (male). The perforation was on the right tuber parietale.

Among other observations, state—

Whether the child was probably alive when perforated?

Whether the perforation was justifiable?

Whether the perforation was made in the right spot?

What was the object in using the elastic tube?

Whether the application of the forceps after perforating was justified?

In what position was the head?

How came the perforation to be on the right tuber parietale?

What ought to be the prognosis as to her recovery, and the after-treatment?

CELSUS.

Examiners, Dr. BILLING and Dr. TWEEDIE.

Proxima his inter intestinorum mala tormina esse consueverunt: *δυσεντερία* Græcè vocatur. Intùs intestina exulcerantur: ex his cruor manat: isque modò cum stercore aliquo semper liquido, modò cum quibusdam quasi mucosis excernitur; interdùm simul quædam carnosæ descendunt: frequens dejectiendi cupiditas, dolorque in ano est. Cum eodem dolore exiguum aliquid emittitur, atque eo quoque tormentum intenditur: idque post tempus aliquod levatur, exiguaque requies est; somnus interpellatur, febricula oritur, longoque tempore id malum quàm inveteraverit, aut tollit hominem, aut etiamsi finitur, exeruciat. Oportet in primis conquiescere; siquidem omnis agitatio exulcerat: deindè jejunum sorbere vini cyathum, cui contrita radix quinquefolii sit adjecta: imponere cataplasmata super ventrem quæ reprimunt; quod in superioribus ventris morbis non expedit: quotiesque desidit, subluere aquâ calidâ in quâ decoctæ verbenæ sint: portulacam vel coctam vel ex durâ muriâ edisse; cibos potionesque eas, quæ adstringunt alvum. Si vetustior morbus est, ex inferioribus partibus tepidum infundere vel ptisanæ cremorem, vel lac, vel adipem liquatam, vel medul-

lam cervinam, vel oleum, vel cum rosâ butyrum, vel cum eâdem album crudum ex ovis, vel aquam in quâ lini semen decoctum sit; vel, si somnus non accedit, vitellos cum aquâ in quâ rosæ floris folia cocta sint: levant enim dolorem hæc, et mitiora ulcera efficiunt; maximèque utilia sunt, si cibi quoque secutum fastidium est. Themison muriâ durâ quàm asperrimâ sic utendum memoriæ prodidit. Cibi verò esse debent qui leniter ventrem adstringant. At ea quæ urinam movent, si id consecuta sunt, in aliam partem humorem avertendo prosunt; si non sunt consecuta, noxam augent: itaque nisi in quibus promptè id facere consuerunt, non sunt adhibenda. Potui, si febricula est, aqua pura calida, vel ea quæ ipsa quoque adstringat, dari debet: si non est, vinum leve austerum. Si pluribus diebus nihil remedia alia juverunt, vetusque jam vitium est, aquæ benè frigidæ potio assumpta ulcera adstringit, et initium secundæ valetudinis facit. Sed ubi venter suppressus est, protinùs ad calidam potionem revertendum est. Solet autem interdùm etiam putris sanies pessimique odoris descendere: solet purus sanguis profluere. Si superius vitium est, alvus aquâ mulsâ duci debet; tùm deindè eadem infundi, quæ suprâ comprehensa sunt. Valensque est etiam adversùs cancerem intestinorum, minii gleba cum salis heminâ contrita, si mixta his aqua in alvum datur. At, si sanguis profluit, cibi potionesque esse debent, quæ adstringant. (Lib. iv. cap. xv.)

TUESDAY, November 23.—MORNING, 10 to 1.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. Enumerate the varieties of intermittent fever, and the modifications of each type: describe the lesions or local affections with which they are occasionally complicated.

2. In investigating the causes of dropsy, what circumstances would lead to the inference that it depends on renal disease?

3. Give the symptoms, anatomical characters, and treatment of inflammation of the membranes of the brain.

4. Detail the general and physical signs of pericarditis. What are its anatomical characters? How should it be treated?

TUESDAY, November 23.—AFTERNOON, 3 to 6.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. What are the symptoms and anatomical characters of Croup? State the indications of treatment and the means of fulfilling them.

2. Detail the progressive symptoms and physical signs of Pleurisy. How is it distinguished from Pneumonia? Men-

tion the treatment to be pursued both in the early and in the advanced stage of the disease.

3. Describe the forms, and give the general and physical signs of hypertrophy of the heart. How is it distinguished from nervous palpitation?

4. Specify the more important complications or secondary affections which arise in the progress of cardiac hypertrophy.

FRIDAY, November 26, at 10 A.M.

EXAMINATION ON THE ANSWERS TO THE
PRINTED PAPERS, AND ON THE COMMEN-
TARIES.

By Vivâ Voce Interrogation.

Examiners, Dr. BILLING, Dr. RIGBY, and Dr. TWEEDIE.

EXAMINATION FOR HONOURS.

EXAMINATION FOR HONOURS.

TUESDAY, November 30.—MORNING, 10 to 1.

SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

1. GIVE a description of the various mild and malignant diseases of the female Breast and Axilla; detailing the symptoms, appearances, and treatment, not only of such tumours or diseases as ought to be removed by the knife, but of such other diseases and tumours wherein an operation is either not required or forbidden: describe the method of extirpating the Breast, with the mode of dressing and subsequent treatment.

2. What is a Femoral Hernia? How would you detect it, and with what diseases might it be confounded? In how many different conditions may such a hernia be found? Give the symptoms and treatment of each state respectively; and when you have determined on an operation, state your reasons for such determination: detail the method of performing it, with the management necessary, according to the various conditions in which the contents of the Hernial Sac may be found; following the case up, step by step, either to a successful or fatal termination.

TUESDAY, November 30.—AFTERNOON, 3 to 6.

SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

1. Give the symptoms and the various causes of a collection, of matter or water, in the cavity of the Chest: under what circumstances, or with what views, would you proceed to perform the operation of Paracentesis Thoracis? Describe the method of performing it, with the subsequent treatment; and where the case terminates fatally, detail the appearances usually found on examining the cavity of the thorax.

2. What are the symptoms and mode of treating a retention of urine, arising either from accident or disease? Describe those accidents and diseases; and when your modes of relief have been unsuccessful, what are the symptoms that would determine you to puncture the bladder? Enumerate and describe the various operations that have been recommended for that purpose, either by the rectum, through the perinæum, or above the pubes, with your opinion of their relative merits. State whether all three of the above-named operations are applicable in all conditions of the bladder and neighbouring parts, with your reasons for preferring one or other of them in particular cases.

WEDNESDAY, December 1.—MORNING, 10 to 1.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. Enumerate the forms of rheumatism: describe the symptoms and progress of acute rheumatism—its pathology—complications—diagnosis and treatment. Give an outline of the treatment of rheumatism, including the effects of climate, and of the more approved mineral waters in chronic cases.

2. Describe the symptoms of chorea: mention its nature and causes; and detail the several modes of treatment which have been recommended for its cure.

WEDNESDAY, December 1.—AFTERNOON, 3 to 6.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

1. Describe the more common forms of dyspepsia: state the circumstances by which functional may be distinguished from malignant diseases of the stomach. Specify the more important secondary disorders induced by dyspepsia, and detail the treatment, remedial and dietetic, applicable to each form of the disease.

2. Enumerate the varieties of tetanus: describe a paroxysm of trismus. Mention the exciting causes of tetanus, and give a brief outline of the theories which have been entertained of its nature or pathology. Sketch the treatment of tetanus, idiopathic and symptomatic.

THURSDAY, December 2.—MORNING, 10 to 1.

MIDWIFERY.

Examiner, Dr. RIGBY.

1. Enumerate the various causes of faulty uterine action during labour.
2. What are the symptoms, causes and treatment of Dysmenorrhœa?

THURSDAY, December 2.—AFTERNOON, 3 to 6.

MIDWIFERY.

Examiner, Dr. RIGBY.

1. Enumerate briefly the different species of puerperal fever as usually described by modern authors, their symptoms and treatment.
2. What is the diagnosis between the corroding ulcer of the os uteri and cancer of the uterus?

CANDIDATES.

~~~~~

The following Candidates passed the Examinations, and have consequently been admitted to the Degree of DOCTOR OF MEDICINE.

### *First Division.*

|                                 |                             |
|---------------------------------|-----------------------------|
|                                 | Medical Schools, &c.        |
| *COOKE, WILLIAM MARTEN.....     | Webb Street.                |
| COOPER, HENRY .....             | University College.         |
| GOODFELLOW, STEPHEN JENNINGS... | St. Bartholomew's Hospital. |
| *MACKENZIE, FREDERICK WILLIAM.. | University College.         |
| RAYNER, WILLIAM .....           | University College.         |
| WADDY, JONATHAN MASON .....     | Guy's and St. Thomas's.     |

### *Second Division.*

AYRES, PHILIP BURNARD .....

University College.

\* To each of these a Certificate of Special Proficiency in Medicine was awarded.

## EXAMINATION FOR HONOURS.

### SURGERY.

WADDY, JONATHAN MASON .....

Guy's & St. Thomas's.

### MEDICINE.

MACKENZIE, FREDERICK WM... (*Gold Medal*)..

University College.

COOKE, WILLIAM MARTEN.....

Webb Street.

### MIDWIFERY.

WADDY, JONATHAN MASON... (*Gold Medal*)...

Guy's & St. Thomas's.

RICHARD AND JOHN E. TAYLOR,  
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EXAMINATION

FOR

M A T R I C U L A T I O N

IN THE YEAR 1842.



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## EXHIBITIONERS.

---

### MATHEMATICS AND NATURAL PHILOSOPHY.

1838. { CHARLES JAMES HARGREAVE ..... University College.  
      { C. SARGENT ..... King's College.
1839. ISAAC TODHUNTER ..... University College.
1840. WILLIAM DAVISON ..... University College.
1841. JOSEPH ANTHONY SPENCER..... University College.
1842. HENRY RICHARDS LUARD ..... King's College.

### CLASSICS.

1838. { FREDERICK JAMES MANNING ..... King's College.  
      { CHARLES PETER MASON ..... University College.
1839. { BARROW HELBERT ELLIS ..... University College.  
      { GEORGE DAVID JONES ..... King's College.  
      { JOHN PHILIP MARTINEAU ..... University College.
1840. TIMOTHY SMITH OSLER ..... Bristol College.
1841. BUNNELL LEWIS ..... University College.

# PASS EXAMINATION.

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MONDAY, July 4.—MORNING, 10 to 1.

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## ARITHMETIC AND ALGEBRA.

*Examiner, Mr. JERRARD.*

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1. GIVE an account of our method of numeration. Wherein consists the great advantage it possesses over the methods of the ancients?

2. Upon what principles does the rule for the division of one whole number by another depend? What is meant by dividing one fraction by another?

3. Reduce

$$(1.) \quad \frac{2}{3} + \frac{4}{5} + \frac{6}{7} - \frac{8}{9},$$

$$(2.) \quad \frac{1}{2 + \frac{3}{4 + \frac{5}{6}}}$$

to their most simple forms; and divide

·0079968 by 2·24.

4. Investigate the rule for the extraction of the square root of a number. Take as an example the number 3392964. What is the square root of  $3\frac{3}{4}$  to five places of decimals?

5. Define Discount; and find the present value of £793 due six months hence, interest being at  $3\frac{1}{2}$  per cent.



6. State the rule for the signs in the multiplication of algebraic quantities. Expand

(1.)  $(x + a)(x + b)(x + c)$ , (2.)  $(x + a)^3(x - a)^3$ ; and show that

$$x^5 = \frac{(x + 1)^5 + (x - 1)^5}{2} - (10x^3 + 5x).$$

7. Divide  $(x^3 - 6x^2 + 11x - 6)(x - 4)$  by  $x - 1$ . Also investigate the expression  $\frac{a^m}{a^n} = a^{m-n}$ . What is the meaning of the result when  $m$  is equal to  $n$ ?

8. Show that if

$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \dots$$

then will

$$\frac{a}{b} = \frac{a + c + e + \dots}{b + d + f + \dots}$$

9. Solve the equations

(1.)  $5x - 7 = 9(x - 1) - 42,$

(2.)  $\frac{x}{3} - \frac{x - 5}{7} = 11,$

(3.)  $(2a - x)(a + b) = 5a(b + x) - 7bx.$

(4.) 
$$\left. \begin{aligned} \frac{5x}{3} - 16 + \frac{2y}{5} &= 18 - y \\ \frac{x}{4} - \frac{7y}{2} - 1 &= 3(1 - x) \end{aligned} \right\},$$

(5.) 
$$\left. \begin{aligned} x + y + 2z &= 28 \\ 3x - 2y &= 33 \\ 2x + 5y - 7z &= 72 \end{aligned} \right\}.$$

MONDAY, July 4.—AFTERNOON, 3 to 6.

---

ENGLISH HISTORY.

*Examiner, Rev. Dr. JERRARD.*

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1. Give a short account of the manners, government, and religion of the ancient Britons. How does it appear that Christianity prevailed very generally amongst them before the conclusion of the second Century? Was it entirely extinguished in this Island at any subsequent period?

2. Enumerate the most remarkable kings that reigned in England from the Heptarchy to the Norman Conquest; mentioning the title which each of them had to the Crown, and the events that marked their respective reigns.

3. What were the chief safeguards of the liberty of the subject under the Saxon Government? Were these entirely swept away at the Conquest?

4. Mention the successive steps by which, from the Conquest to the Revolution in 1688, the civil liberty of Englishmen was secured—giving the date of each measure to which you refer, and pointing out the events which chiefly led to it.

5. Give some account of the struggle for power between Henry II. and Thomas à Becket; with the particulars of the assassination of the latter, and its immediate consequences.

6. At what period was the Papal authority at its greatest height in this Country? What effect had the Crusades upon it? What circumstances led, remotely or immediately, to its downfall in England?

7. What evidence have we of the bad state of Agriculture in the time of Henry VIII.? What was its condition during the reign of James I.?

8. By what acts of Elizabeth was the progress of Com-

merce much impeded? What was the period of the most rapid increase of Commerce and of Manufacture previously to the Revolution?

9. What part did Cromwell take in respect of (1) the trial, and (2) the execution, of King Charles I.? When was he appointed lord-lieutenant of Ireland? Give a short account of his proceedings in that Country; and also in Scotland.

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TUESDAY, July 5.—MORNING, 10 to 1.

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GREEK CLASSIC AND HISTORY.

*Examiner, Mr. BURCHAM.*

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HOMER\*, ODYSSEY, Book XI.

- I. Ἀὐτὰρ ἐπὶν μνηστῆρας ἐνὶ μεγάροισι τεοῖσιν  
κτείνης, ἠὲ δόλω, ἠὲ ἀμφαδὸν ὀξείῃ χαλκῶ,  
ἔρχεσθαι δὴ ἔπειτα, λαχὼν εὐήρες ἐρετμόν,  
εἰσόκε τοὺς ἀφίκηαι, οἷ οὐκ ἴσασι θάλασσαν  
ἀνέρες, οὐδέ θ' ἄλεσσι μεμιγμένον εἶδαρ ἔδουσιν·  
οὐδ' ἄρα τοίγ' ἴσασι νέας φοινικοπαρήους,  
οὐδ' εὐήρε' ἐρετμά, τά τε πτερὰ νηυσὶ πέλονται.  
σῆμα δέ τοι ἐρέω μάλ' ἀριφραδές, οὐδέ σε λήσει·  
ὄππότε κεν δὴ τοι ξυμβλήμενος ἄλλος ὀδίτης  
φήη, ἀθηρηλοιγὸν ἔχειν ἀνὰ φαιδίμῳ ὤμῳ,  
καὶ τότε δὴ γαίη πήξας εὐήρες ἐρετμόν,  
ῥέξας ἱερὰ καλὰ Ποσειδάωνι ἀνακτι,  
ἀρνεῖον, ταῦρόν τε, συῶν τ' ἐπιβήτορα κάπρον,

\* Edit. Loewe.

οἴκαδ' ἀποστείχειν, ἔρδειν θ' ἱεράς ἐκατόμβας  
 ἀθανάτοισι θεοῖσι, τοὶ οὐρανὸν εὐρὺν ἔχουσιν,  
 πᾶσι μάλ' ἐξείης· θάνατος δέ τοι ἐξ ἄλως αὐτῷ  
 ἀβληχρὸς μάλα τοῖος ἐλεύσεται, ὅς κέ σε πέφνη  
 γήρα' ὑπὸ λιπαρῷ ἀρημένον· ἀμφὶ δὲ λαοὶ  
 ὄλβιοι ἔσσονται· τάδε τοι νημερτέα εἶρω.

II. Ἄλλά κε κείνα μάλιστα ἰδὼν ὀλοφύραο θυμῷ,  
 ὡς ἀμφὶ κρητῆρα, τραπέζας τε πληθούσας,  
 κείμεθ' ἐνὶ μεγάρῳ, δάπεδον δ' ἅπαν αἵματι θῦεν.  
 οἰκτροτάτην δ' ἤκουσα ὅπα Πριάμοιο θυγατρὸς,  
 Κασσάνδρης, τὴν κτεῖνε Κλυταιμνήστρη δολόμητις  
 ἀμφ' ἐμοί· αὐτὰρ ἐγὼ ποτὶ γαίῃ χεῖρας αἰείρων  
 βάλλον ἀποθνήσκων περὶ φασγάνῳ· ἢ δὲ κυνώπις  
 νοσφίσαι, οὐδέ μοι ἔτλη, ἰόντι περ εἰς Ἀἶδαο,  
 χερσὶ κατ' ὀφθαλμοὺς ἐλέειν, σὺν τε στόμ' ἐρείσαι.  
 ὡς οὐκ αἰνότερον καὶ κύντερον ἄλλο γυναικός,  
 ἣτις δὴ τοιοῦτο μετὰ φρεσὶν ἔργα βάληται  
 οἶον δὴ καὶ κείνη ἐμήσατο ἔργον ἀεικές,  
 κουριδίῳ τεύξασα πόσει φόνον· ἦτοι ἔφην γε  
 ἀσπᾶσιος παιδεσσιν ἰδὲ δμῶεσσιν ἐμοῖσιν  
 οἴκαδ' ἐλεύσεσθαι· ἢ δ' ἔξοχα λύγρ' εἰδυῖα  
 οἶ τε κατ' αἰσχος ἔχευε καὶ ἔσσομένησιν ὀπίσσω  
 θηλυτέρησι γυναιξὶ, καὶ ἢ κ' εὐεργὸς ἔησιν.

III. Πάντας δ' οὐκ ἂν ἐγὼ μυθήσομαι, οὐδ' ὀνομήνω,  
 ὅσσον λαὸν ἔπεφνε, ἀμύνων Ἀργείοισιν  
 ἀλλ' οἶον τὸν Τηλεφίδην κατενήρατο χαλκῷ,  
 ἦρῳ Εὐρύπυλον· πολλοὶ δ' ἀμφ' αὐτὸν ἑταῖροι  
 Κήτειοι κτείνοντο, γυναιῶν εἵνεκα δῶρων.  
 κείνον δὲ κάλλιστον ἴδον μετὰ Μέμνονα δῖον.  
 αὐτὰρ ὅτ' εἰς ἵππον κατεβαίνομεν, ὃν κάμ' Ἐπειός,  
 Ἀργείων οἱ ἄριστοι, ἐμοὶ δ' ἐπὶ πάντ' ἐτέταλτο  
 [ἤμην ἀνακλῖναι πυκινὸν λόχον, ἢ δ' ἐπιθεῖναι·]  
 ἔνθ' ἄλλοι Δαναῶν ἠγήτορες ἠδὲ μέδοντες  
 δάκρυά τ' ὠμόργυνντο, τρέμεν θ' ὑπὸ γυῖα ἑκάστου  
 κείνον δ' οὐποτε πάμπαν ἐγὼν ἴδον ὀφθαλμοῖσιν  
 οὔτ' ὠχρήσαντα χροῖα κάλλιμον, οὔτε παρειῶν



δάκρυ' ὁμορξάμενον· ὁ δέ με μάλα πόλλ' ἰκέτευεν  
 ἱππόθεν ἐξίμεναι, ξίφεος δ' ἐπεμαίετο κώπην,  
 καὶ δόρυ χαλκοβαρές, κακὰ δὲ Τρώεσσι μενοίνα.  
 ἀλλ' ὅτε δὴ Πριάμοιο πόλιν διεπέρσαμεν αἰπήν,  
 μοῖραν καὶ γέρας ἐσθλὸν ἔχων ἐπὶ νηὸς ἔβαινε  
 ἀσκηθῆς, οὐτ' ἄρ βεβλημένος ὀξείῃ χαλκῶ,  
 οὐτ' αὐτοσχεδὴν οὐτασμένος· οἶά τε πολλὰ  
 γίγνεται ἐν πολέμῳ· ἐπιμίξ δέ τε μαίνεται Ἄρης.

IV. Καὶ μὴν Τάνταλον εἰσεῖδον, χαλέπ' ἄλγ' ἔχοντα,  
 ἔσταότ' ἐν λίμνῃ· ἢ δὲ προσέπλαζε γενεῖω·  
 στεῦτ' δὲ διψάων, πῖεειν δ' οὐκ εἶχεν ἐλέσθαι.  
 ὁσσάκι γὰρ κύψει' ὁ γέρων, πῖεειν μενεαίνων,  
 τοσσάχ' ὕδωρ ἀπολέσκει' ἀναβροχέν· ἀμφὶ δὲ ποσσὶν  
 γαῖα μέλαινα φάνεσκε, καταζήνασκε δὲ δαίμων.  
 δένδρεα δ' ὑψιπέτηλα κατὰ κρηθεν χέε καρπὸν,  
 ὄγχυαι καὶ ῥοιαὶ καὶ μηλέαι ἀγλαόκαρποι,  
 συκαὶ τε γλυκεραὶ καὶ ἐλαῖαι τηλεθώσσαι.  
 τῶν ὀπότ' ἰθύσει' ὁ γέρων ἐπὶ χερσὶ μάσασθαι,  
 τὰς δ' ἄνεμος ῥίπτασκε ποτὶ νέφεα σκιδόντα.

Καὶ μὴν Σίσυφον εἰσεῖδον, κρατέρ' ἄλγ' ἔχοντα,  
 λᾶαν βαστάζοντα πελώριον ἀμφοτέρησιν.  
 ἦτοι ὁ μὲν, σκληριπτόμενος χερσὶν τε ποσσὶν τε,  
 λᾶαν ἄνω ὤθεσκε ποτὶ λόφον· ἀλλ' ὅτε μέλλοι  
 ἄκρον ὑπερβαλέειν, τότε ἀποστρέψασκε κραταιῖς  
 αὐτίς· ἔπειτα πέδονδε κυλίνδετο λᾶας ἀναιδῆς.  
 αὐτὰρ ὄγ' ἄψ ὤσασκε τιταινόμενος· κατὰ δ' ἰδρῶς  
 ἔρρεεν ἐκ μελέων, κονίη δ' ἐκ κρατὸς ὀρώρει.

1. What are the chief arguments adduced to show that the Iliad and the Odyssey are the productions of two different persons? Give a short summary of the latter poem. Upon what grounds is the passage from v. 568 to v. 626 in this book considered an interpolation?

2. What is the original meaning of τύραννος? During what period did the τύραννοι prevail in Greece? How do you account for the circumstance that they were chiefly to be found in the Dorian states?

3. Show that the liberation of Athens from the tyranny of the Pisistratidæ is falsely ascribed to Harmodius and Aristogeiton. To what family did Cleisthenes belong? Who was his chief political opponent? What changes did Cleisthenes effect in the constitution of Solon?

4. From what country is it probable that Sicily was originally peopled? What were the general names of the inhabitants of the interior, and of the Grecian colonists upon the coast? About what time was Syracuse founded, and by whom?

5. Between whom was the battle of Cunaxa fought? What ultimate results as regarded Persia were produced by the retreat of the ten thousand? Who was the competitor of Agesilaus for the throne of Sparta? To whose influence was the latter chiefly indebted for his success?

6. From whom did the Macedonian kings claim descent? What is the earliest mention we have of Macedonia? What was the form of government established there? What ancient form did it resemble?

7. About what time did the confederate war break out? Mention the names of the principal states united in the confederacy? How long did that war last, and what was its result? Give a short account of the circumstances which led to the placing of Philip at the head of the Thessalian confederacy.

TUESDAY, July 5.—AFTERNOON, 3 to 6.

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CHEMISTRY. NATURAL HISTORY.

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CHEMISTRY.

*Examiner*, Professor DANIELL.

1. How would you prove atmospheric air to have the properties of weight and elasticity? and what is the constitution of the atmosphere as dependent upon these properties?

2. What is the chemical constitution of the atmosphere? Refer to experimental evidence.

3. Explain the process by which a wet cloth becomes dry in the atmosphere, and the circumstances upon which the rapidity of the operation depends.

4. Describe a process for obtaining and collecting oxygen gas.

5. Illustrate the meaning of the term *Chemical Equivalent* by an example.

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BOTANY.

*Examiner*, Rev. Professor HENSLOW.

CHARACTERS OF THE PRINCIPAL NATURAL FAMILIES OF EUROPEAN PLANTS.

State the principal characters of the following Orders:

1. Cistaceæ.
2. Malvaceæ.
3. Rosaceæ.

Compare the following Orders; showing by what characters they principally agree and disagree:

4. Boraginaceæ with Labiataë.
5. Iridaceæ with Amaryllidaceæ.

Refer to their Natural Orders, the plants possessing the following characters:

6. *Flores* hermaphroditi regulares.  
*Calyx* 4-sepalus.  
*Corolla* 4-petala, hypogyna, sepalis alterna.  
*Stamina* 6, hypogyna, tetradynama.
7. *Flores* hermaphroditi.  
*Calyx* tubulosus, gamosepalus.  
*Corolla* hypogyna, gamopetala, petalis sepalis alternis.  
*Stamina* loborum corollæ numero, iisque opposita.  
*Fructus* capsularis, unilocularis, placenta centrali, seminibus plurimis.  
*Embryo* in axi albuminis, umbilico parallelus, dictyledoneus.

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## ZOOLOGY.

*Examiner*, Professor T. RYMER JONES.

1. Name the PRIMARY DIVISIONS of the Animal Kingdom according to the Cuvierian system of arrangement, and state the leading characters whereby they are respectively distinguished.
2. Describe the animals that form the class ACALEPHÆ.
3. State the essential differences between a FISH, a REPTILE, a BIRD, and a MAMMAL.
4. What peculiarities distinguish the BATRACHIA from other Reptiles?
5. Name, and briefly describe the *classes* of animals which constitute the great group Mollusca.
6. What are the *orders* into which the class MAMMALIA is divided, and the characters peculiar to each?



WEDNESDAY, July 6.—MORNING, 10 to 1.

GEOMETRY AND SIMPLE EQUATIONS.

*Examiner, Rev. R. MURPHY.*

1. Define a straight line, a circle, and a plane, and show that two straight lines cannot have a common segment.

2. Show how a perpendicular may be drawn on a given straight line from a given point without it.

3. Prove that in any triangle, the greater angle is subtended by the greater side.

4. If two straight lines are parallel to the same straight line, prove that they are parallel to each other. If they are on opposite sides of the straight line to which they are parallel, prove this proposition without the assistance of the twelfth axiom.

5. Show that the diagonals of a parallelogram bisect each other. What is the length of the diagonal of a square of which the side is a unit? Prove that it is incommensurable.

6. Prove that the sum of the angles of any plane rectilinear figure is either two right angles or a multiple of two right angles.

7. Parallelograms on the same base and between the same parallels are equal to each other.

8. *Problem.*—It is required to draw a straight line from a given point, which shall make equal angles with two given straight lines.

9. Simple equations :

$$(1.) \quad \frac{5x+7}{4} + 719 = 722x.$$

$$(2.) \quad \begin{cases} x + 2y + 3z = 14. \\ 3y - 7z = 15. \\ \frac{50z - 47x}{11y - 3} = \frac{103}{25}. \end{cases}$$

$$(3.) \begin{cases} 17x - 20y = 30x + 18y - 7. \\ 119x - 139y = 210x + 125y + 1. \end{cases}$$

10. *Problem.*—What is the value of  $x$ , when £  $x$  and 18 shillings are twice the amount of £18 and  $x$  shillings precisely?

WEDNESDAY, July 6.—AFTERNOON, 3 to 6.

## NATURAL PHILOSOPHY.

*Examiners,* MR. JERRARD and REV. R. MURPHY.

1. Prove that the resultant of two forces acting upon a point will be represented both in magnitude and direction by the diagonal of the parallelogram, the sides of which represent the component forces in magnitude and direction.

*Example.* Two forces equivalent each to twelve pounds act conjointly on a point at an angle of  $60^\circ$  with each other; find what single force is equivalent to these two forces.

2. State the condition of equilibrium in the lever, both when the forces are on the same, and when on opposite sides of the fulcrum. To what kind of lever does an oar propelling a boat belong? Give instances of levers of the third kind, and explain the object of employing them.

3. Describe the chief experiments for illustrating the General Laws of Motion.

4. How far will a body fall *in vacuo* in  $3\frac{1}{2}$ " , and what will be the velocity acquired?

5. The pressure of fluids is equally diffused, and varies as the depth when uniform.

6. Define Specific Gravity. How may the specific gravity of a body be ascertained?

7. Describe the construction of the Barometer, and mention its principal uses.

8. Explain the nature of Sound. How are echoes produced?

9. Give some account of the formation of Images by Lenses.

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THURSDAY, July 7.—MORNING, 10 to 1.

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ROMAN CLASSIC AND HISTORY.

*Examiner, Rev. Dr. JERRARD.*

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CÆSAR\*, DE BELLO GALLICO.

Translate :

Book V. chap. 12, 42, 43.

(A.) Britanniae pars interior ab iis incolitur, quos natos in insula ipsa memoria proditum dicunt: maritima pars ab iis, qui prædæ ac belli inferendi causa ex Belgis transierant; qui omnes fere iis nominibus civitatum adpellantur, quibus orti ex civitatibus eo pervenerunt et bello inlato ibi remanserunt atque agros colere cœperunt. Hominum est infinita multitudo creberrimæque ædificia, fere Gallicis consimilia: pecorum magnus numerus. Utuntur aut ære, aut annulis ferreis, ad certum pondus examinatis, pro nummo. Nascitur ibi plumbum album in mediterraneis regionibus, in maritimis ferrum; sed ejus exigua est copia: ære utuntur importato. Materia cujusque generis, ut in Gallia, est, præter fagum atque abietem. Leporem et gallinam et anserem gustare,

\* Edit. Oberlin.

fas non putant; hæc tamen alunt animi voluptatisque caussa. Loca sunt temperatoria, quam in Gallia, remissioribus frigoribus.

Translate, explaining the military terms :

(B.) Ab hac spe repulsi Nervii, vallo pedum XI et fossa pedum XV hiberna cingunt. Hæc et superiorum annorum consuetudine a nostris cognoverant et, quosdam de exercitu nacti captivos, ab his docebantur: sed, nulla ferramentorum copia, quæ sunt ad hunc usum idonea, gladiis cespitem circumcidere, manibus sagulisque terram exhaurire cogebantur. Qua quidem ex re hominum multitudo cognosci potuit: nam minus horis tribus milium decem in circuitu munitionem perfecerunt: reliquisque diebus turres ad altitudinem valli, falces testudinesque, quas iidem captivi docuerant, parare ac facere cœperunt.

Septimo obpugnationis die, maximo coorto vento, ferventes fusili ex argilla glandes fundis et fervefacta jacula in casas, quæ more Gallico stramentis erant tectæ, jacere cœperunt. Hæ celeriter ignem comprehenderunt et venti magnitudine in omnem castrorum locum distulerunt. Hostes, maximo clamore insecuti, quasi parta jam atque explorata victoria, turres testudinesque agere et scalis vallum adscendere cœperunt. At tanta militum virtus atque ea præsentia animi fuit, ut, quum undique flamma torrerentur maximaque telorum multitudine premerentur suaque omnia impedimenta atque omnes fortunas conflagrare intellegerent, non modo demigrandi caussa de vallo decederet nemo, sed pæne ne respiceret quidem quisquam; ac tum omnes acerrime fortissimeque pugnarent. Hic dies nostris longe gravissimus fuit; sed tamen hunc habuit eventum, ut eo die maximus hostium numerus vulneraretur atque interficeretur, ut se sub ipso vallo constipaverant recessumque primis ultimi non dabant.

Book VI. chap. 19, 20.

(C.) Viri, quantas pecunias ab uxoribus dotis nomine acceperunt, tantas ex suis bonis, æstimatione facta, cum dotibus communicant. Hujus omnis pecuniæ conjunctim ratio ha-



betur, fructusque servantur: uter eorum vita superarit, ad eum pars utriusque cum fructibus superiorum temporum pervenit. Viri in uxores, sicut in liberos, vitæ necisque habent potestatem: et, quum pater familiæ, inlustriore loco natus, decessit, ejus propinqui conveniunt et, de morte si res in suspicionem venit, de uxoribus in servilem modum quæstionem habent, et, si compertum est, igni atque omnibus tormentis excruciatas interficiunt. Funera sunt pro cultu Gallorum magna et sumtuosa; omniaque, quæ vivis cordi fuisse arbitrantur, in ignem inferunt, etiam animalia: ac paullo supra hanc memoriam servi et clientes, quos ab iis dilectos esse constabat, justis funeribus confectis, una cremabantur.

Quæ civitates commodius suam rem publicam administrare existimantur, habent legibus sanctum, si quis quid de re publica a finitimis rumore ac fama acceperit, uti ad magistratum deferat, neve cum quo alio communicet: quod sæpe homines temerarios atque inperitos falsis rumoribus terri et ad facinus impelli et de summis rebus consilium capere cognitum est. Magistratus, quæ visa sunt, occultant; quæque esse ex usu judicaverint, multitudini produnt. De re publica nisi per concilium loqui non conceditur.

1. What is the character of Cæsar's style as an Historian? What as an Orator? Are his descriptions of the Britons, Gauls, and Germans, accurate?

2. What is the most probable account of the origin of the Druids? Was the treatment which they received from the Romans in accordance with the usual policy of the latter? How was that policy consistent with their national creed? "In primis hoc volunt (Druides) persuadere, non interire animas,"—what appears to have been Cæsar's opinion on this subject?

3. Draw a map of that part of Ancient Britain which lay south of the Tamesis, giving the modern as well as the ancient names. What is the probable derivation of the word 'Britain'?

4. When did the decline of the Roman Republic commence, and what events most signally marked the progress

of that decline? On what pretext did Caesar take up arms against the Senate? Give a sketch of his proceedings throughout the Civil War. Contrast his clemency with the cruelty of other Roman conquerors. On what ostensible grounds was the plot formed against his life? Not to speak of the *guilt* of the act of assassination, was the conduct of the conspirators *politic*?

5. (C.) “*si res in suspicionem venit*”. Why not ‘*veniat*’? Give instances of similar constructions. Explain the origin and use of the Latin Supines, supporting your theory by examples.

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THURSDAY, July 7.—AFTERNOON, 3 to 6.

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GRAMMATICAL STRUCTURE OF THE  
ENGLISH LANGUAGE.

*Examiner*, Mr. BURCHAM.

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1. In what relation does the Modern English stand to the Anglo-Saxon? Mention the languages which bear a similar relation to the Latin and Greek. What stages of a language are denoted by a greater or less amount of inflectional forms?

2. Mention the different modes of expressing Gender in the English language, and also the corresponding ones in the Latin and Greek. Is the distinction of Gender necessary to a language? Upon what grounds is it contended that there is no Gender where the declension is not affected? Upon this hypothesis, what words are the only specimens of true Gender in the English language?

3. What is the *matter*, and what the *form* of a language? How do the English and Latin differ in respect of the latter?

What are in general criteria of the greater or less antiquity of languages of the same stock? Compare in this respect the Anglo-Saxon and the English, the Latin and the Greek.

4. What properly constitutes a Case? What would be the consequence if it were constituted merely by the use of a preposition? Of what case are the old words '*whilom,*' '*seldom,*' remnants? From what, according to the common notion, is the genitive form '*father's*' contracted? Give a more probable explanation.

5. What gender did the termination in *ster* originally denote? What word in our language with that termination retains the same force? What termination in German is equivalent to the English one in *-ess*? Has the English language any words with the same termination and force? Of what word is '*vixen*' a derivative?

6. Define *Composition*. How does it differ from what is called *gemination* and *derivation*? What is the rule in the case of Compound words in English in respect of the word which is qualified by the addition? On which of the words does the accent generally fall? What difference, as regards the accent and the ideas conveyed, is there between a compound and two words?

7. Give instances of expressions where *never* and *ever* are interchanged wrongly? What is the rule with respect to the proper collocation of the adverb with adjectives and verbs? What is generally the proper position of the adverb '*only*'?

8. Have conjunctions any government in the English language? Has it any mood corresponding with the subjunctive in Latin and Greek? With what limitations is Mr. Harris to be understood when he says, that the chief difference between prepositions and conjunctions is, that the former couple *words* and the latter *sentences*?

9. Define '*Metre.*' What is the difference between the English Metres and the Metres of the Classical languages? In what does a full and perfect rhyme consist? Give instances from any of our poets, where the recurring sounds are merely Assonances.

EXAMINATION FOR HONOURS.





# EXAMINATION FOR HONOURS.

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## MATHEMATICS AND NATURAL PHILOSOPHY.

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TUESDAY, July 12.—MORNING, 10 to 1.

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### ARITHMETIC, ALGEBRA, GEOMETRY.

*Examiner,* REV. R. MURPHY.

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1. FIND the number of seconds in 365 days, 5 hours, 48 minutes, and 48 seconds (time), and the number of English degrees, &c., equivalent to  $380^{\circ} 90'$  French.

2. Explain what is meant by the multiplication and division of fractions one by the other, or by integers, and take numerical examples to illustrate your explanation. Also find in a decimal form the difference between  $\frac{7}{22}$  and  $\frac{113}{355}$ .

3. At what do you estimate the total wages of 123 labouring men and 41 children for five weeks, at  $1s. 7\frac{1}{2}d.$  for each

of the former daily, and one half that allowance for each of the children?

4. In algebraic multiplication, prove the rule for the sign of the product, and also that in multiplying powers of like quantities the index of the product will be the sum of those of the two quantities multiplied.

5. Prove the rule for finding the greatest common measure of two numbers, or of two integer algebraic forms.

6. Find by the ordinary rules of progression in algebra the sum to 10 terms of the following series:—

$$(1.) \text{ Arithmetical: } \frac{11}{20}, -\frac{1}{10}, -\frac{3}{4}, -\frac{7}{5}, \&c.$$

$$(2.) \text{ Geometrical: } 1, -\frac{1}{2}, +\frac{1}{4}, -\frac{1}{8}, \&c.$$

7. Solve the following equations:

$$(1.) \quad x^2 + (a + b)x = -ab.$$

$$(2.) \quad \begin{cases} (x^3 + y^3) + (x + y) = 0. \\ x - y = \dots\dots 2. \end{cases}$$

$$(3.) \quad (x+1)^2 + (x+2)^2 + (x+3)^2 + \dots + (x+n)^2 = nx^2 + a.$$

$$(4.) \quad \sqrt{\left(\frac{x+a}{x-a}\right)} - \sqrt{\left(\frac{x-a}{x+a}\right)} = x + \sqrt{x^2 - a^2}.$$

8. Prove that the angle formed at the centre of a circle is double that at the circumference, if they stand on the same arc.

9. Construct an isosceles triangle, of which the base angles are each double the vertical angle.

10. The areas of similar rectilinear figures are to each other as the squares of their homologous sides.

11. State and prove Ptolemy's Theorem relative to quadrilaterals inscribed in circles.

TUESDAY, July 12.—AFTERNOON, 3 to 6.

PLANE AND SPHERICAL TRIGONOMETRY—  
CONIC SECTIONS.

*Examiner*, Mr. JERRARD.

1. Investigate the expression

$$\sin(a \pm b) = \sin a \cos b \pm \sin b \cos a,$$

and apply it in obtaining

$$\frac{\sin a + \sin b}{\sin a - \sin b} = \frac{\tan \frac{1}{2}(a + b)}{\tan \frac{1}{2}(a - b)}.$$

2. Prove Legendre's *formula of verification*

$$\sin(54^\circ + x) + \sin(54^\circ - x) - \sin(18^\circ + x) - \sin(18^\circ - x) = \sin(90^\circ - x).$$

3. Express the tangent of half an angle of a plane triangle in terms of the sides.

4. In a spherical triangle, given two angles with the side opposite one of them, find the other two sides and the third angle.

5. Show that

$$\cos \theta = \frac{1 + aa'}{\sqrt{(1 + a^2)(1 + a'^2)}}$$

where  $\theta$  is the angle contained between two straight lines of which the equations are

$$y = ax + b, \quad y = a'x + b'.$$

6. Investigate formulæ for the transformation of coordinates from a rectangular system to an oblique one having the same origin.

7. For the parabola find the locus of the intersections of tangents forming a given angle. What does it become when the angle is right?



8. Find the polar equation to the hyperbola, one of the foci being the pole.

9. Prove that in the ellipse

$$S P \times H P = C D^2,$$

S and H being the foci and C D the semi-diameter parallel to the tangent at P.

WEDNESDAY, July 13.—MORNING, 10 to 1.

## HYDROSTATICS AND OPTICS.

*Examiner, Rev. R. MURPHY.*

1. Give explanations of the terms Fluidity, Elasticity and Dilatability as applied to liquids or gases, and explain the principle of Bramah's Press.

2. Find the pressure on a plane surface immersed in a fluid, and define the Centre of Pressure.

3. Required all the conditions necessary for the equilibrium of a floating body, and define the Metacentre of such a body.

4. Prove that the positions of stable and instable equilibrium in a floating body are alternate.

5. Describe the Air-pump and the Diving-bell.

6. Describe the experiments by which the laws of the reflexion and refraction of light may be verified.

7. Find the relation between the conjugate foci in the axis of a concave spherical speculum.

8. Describe the Eye, and state the appropriate lenses for defective vision.

9. Give a general account of the Undulatory theory of light, and of interferences.

WEDNESDAY, July 13.—AFTERNOON, 3 to 6.

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STATICS AND DYNAMICS.

*Examiner, Mr. JERRARD.*

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1. Prove that the moment of the resultant of two forces acting in one plane about any point is equal to the sum or difference of the moments of the components, according as the forces tend to turn the system the same or different ways.

2. Show that in any system of particles the sum of the products formed by multiplying each particle into the square of its distance from a certain point is least when the point is the centre of gravity.

3. Find the condition necessary in order that any number of forces acting upon a rigid body may have a single resultant.

4. A beam, considered as a straight line, rests upon a given point with its end against a vertical plane; what is the position of equilibrium?

5. State the general result of the experiments for determining the laws of *Friction*, and find the conditions of equilibrium when a force acting in any direction supports a weight upon an inclined plane, friction being taken into the account.

6. Investigate the equations

$$s = \frac{1}{2} f t^2, \quad v^2 = 2 f s,$$

and show that the spaces described in the 1st, 2nd, 3rd, 4th, .. seconds are as the odd numbers 1, 3, 5, 7, ..

7. Find the curve which a projectile would describe, if the resistance of the air were neglected. What would be the

range on a horizontal plane, and the time of flight of a body projected at an elevation of  $9^\circ$  with a velocity of 1600 feet a second?

8. Define moving force and accelerating force. Two heavy bodies hang over a fixed pulley, find the accelerating force. When the weights are as 7 to 5, what will be the space described from a state of rest in three seconds?

9. Show that the motion of the centre of gravity of two bodies is not affected by their direct impact.

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THURSDAY, July 14.—MORNING, 10 to 1.

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### GENERAL QUESTIONS.

*Examiner, Rev. R. MURPHY.*

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1. A can perform a piece of work in one hour for which B would require double the time and C only half the time; in what time could all three jointly perform it?

2. Extract the square root of  $\cdot 0230957$ , and the cube root of 2985984.

3. It is required to inscribe a square in a semicircle.

4. Draw a straight line which shall touch two given circles, on opposite sides of the line joining their centres.

5. Given the sum and product of two numbers, find the sum of their  $n$ th powers.

6. Investigate the common rules for simple and compound interest.

7. Find the value of  $\left(1 + \frac{x}{n}\right)^n$  when  $n$  is infinite.
8. Give an explanation of the phenomena of the action of capillary tubes and inclined glass plates on water and mercury.
9. Describe the Camera Lucida and the simple Microscope.
10. Explain the Mirage and the Fata Morgana.

THURSDAY, July 14.—AFTERNOON, 3 to 6.

### GENERAL QUESTIONS.

*Examiner, Mr. JERRARD.*

1. Show that the area of a quadrilateral figure inscribed in a circle will be equal to

$$\sqrt{(p-a)(p-b)(p-c)(p-d)},$$

where  $a, b, c, d$  are the sides, and  $p = \frac{1}{2}(a + b + c + d)$ .

2. Investigate the expressions

$$\cos \theta = \frac{e^{\theta \sqrt{-1}} + e^{-\theta \sqrt{-1}}}{2}, \quad \sin \theta = \frac{e^{\theta \sqrt{-1}} - e^{-\theta \sqrt{-1}}}{2 \sqrt{-1}},$$

and expand Nap. log  $(1 - n \cos \theta)$  in a series of the form

$$A + B \cos \theta + C \cos 2 \theta + \dots$$

3. Show how to solve by trigonometry the equation

$$x^2 + ax + b = 0.$$

4. Investigate the relations which the sides and angles of a spherical triangle bear to those of its *polar* triangle, and thence deduce the expression for the cosine of a side in terms



of the angles from that for the cosine of an angle in terms of the sides.

5. Show how to determine the coordinates of the centre of curves represented by the equation

$$A y^2 + B x y + C x^2 + D y + E x + F = 0.$$

How does it appear from the investigation that the parabola has no centre?

6. Trace the curve of which the equation is

$$3 x^2 + 3 y^2 - 5 x + 7 y - 2 = 0,$$

and find the axes of the curve represented by

$$x^2 + 2 y^2 = 2 x.$$

7. Find the equation of a tangent to an hyperbola referred to the asymptotes as coordinate axes.

8. What is meant by a *statical couple*? Show that it may be transferred to any distance in its own plane or in any parallel plane, and turned through any angle without altering its effect.

9. State the principle of virtual velocities, and verify it in the case of the inclined plane, and in that of the lever.

## CHEMISTRY.

*Examiner, Professor DANIELL.*

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*FRIDAY, July 15.—MORNING, 10 to 1.*

1. Humboldt, in his "Personal Narrative," notes that from Corunna to the Canary Islands the centigrade thermometer, observed at noon and in the shade, rose gradually from  $10^{\circ}$  to  $18^{\circ}$ , and from Santa Cruz to Cumana from  $18^{\circ}$  to  $25^{\circ}$ ; and he also observes that the maximum heat during the voyage did not exceed  $21^{\circ}\cdot3$  of Reaumur: what are these temperatures respectively upon Fahrenheit's scale?

2. The same eminent traveller observed that upon the top of a high mountain near Santa-Fe di Bogota, water boiled at  $89^{\circ}\cdot9$  cent.: what is this temperature upon Fahrenheit's scale, and how do you account for the difference between it and that which is commonly called the boiling point of water?

3. The mean temperature of the coasts of Teneriffe is about  $70^{\circ}$  Fahr., while the Peak of Teneriffe probably reaches the limit of perpetual congelation; how is the difference of temperature to be accounted for?

4. Explain the general constitution of Salts, and illustrate it by examples.

5. Illustrate the law of definite, equivalent proportions by volume, by examples.

6. What is the general constitution of Organic Substances?

## NATURAL HISTORY.

FRIDAY, July 15.—AFTERNOON, 3 to 6.

### BOTANY.

*Examiner*, Rev. Professor HENSLOW.

State the principal characters of the following Orders:—

1. Rutaceæ.
2. Resedaceæ.
3. Compositæ.
4. Convolvulaceæ.
5. Araceæ.

Point out the chief resemblances and differences between the following Orders:—

6. Umbelliferæ and Araliaceæ.
7. Scrophulariaceæ and Acanthaceæ.
8. Orchidaceæ and Hydrocharaceæ.

Refer to their Natural Orders, the plants possessing the following characters:—

9. *Flores* regulares.

*Calyx* persistens, æstivatione imbricatus.

*Corolle* petala hypogyna, calycis partibus alterna, æstivatione contorta.

*Stamina* (fertilia) petalis numero æqualia, iisque alterna.

*Capsula* multilocularis, loculis monospermis.

*Semina* pendula, endopleura carnosâ, albumen mentiente.

*Embryo* complanatus, dicotyledoneus, radícula supera.

10. *Flores* hermaphroditi.

*Perigonium* corollinum, hexaphyllum.

*Stamina* 6, perigonii foliolis opposita.

*Pericarpium* capsulare, triloculare, loculicido-trivalve.

*Semina* albumine carnosos, copiosos.

*Embryo* monocotyledoneus.

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ZOOLOGY.

*Examiner*, Professor T. RYMER JONES.

1. Describe the principal external and internal changes that are in progress during the metamorphosis of a BATRACHIAN REPTILE.

2. What are the leading anatomical characters wherein the *Sharks* and *Rays* differ from ordinary osseous Fishes?

3. Describe the structure of one of the PULMONIGRADE ACALEPHÆ.

4. What animals compose the class ECHINODERMATA, and what are the most remarkable features of their organization?

5. Describe the circulatory and respiratory apparatus of an Insect.

6. In what respects do the INSECTA differ from the ARACHNIDA?

7. Narrate the phenomena that accompany the metamorphosis of a *Lepidopterous Insect*, more especially as relates to the changes which take place in the nervous system and in the organs of the senses.



## CLASSICS.

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TUESDAY, July 19.—MORNING, 10 to 1.

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### ENGLISH PROSE COMPOSITION.

*Examiner, Mr. BURCHAM.*

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*Subject.*

Velocius et citius nos  
Corrumpunt vitiorum exempla ——— magnis  
Quum subeunt animos auctoribus.—*Juvenal, Sat. XIV.*

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TUESDAY, July 19.—AFTERNOON, 3 to 6.

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### LATIN PROSE COMPOSITION.

*Examiner, Rev. Dr. JERRARD.*

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Translate into Latin Prose :

Hesiod, in his celebrated distribution of mankind, divides them into three orders of intellect. "The first place," says he, "belongs to him that can by his own powers discern what

is right and fit, and penetrate to the remoter motives of action. The second is claimed by him that is willing to hear instruction, and can perceive right and wrong when they are shown him by another: but he that has neither acuteness nor docility, who can neither find the way by himself, nor will be led by others, is a wretch without use or value."

If we survey the moral world, it will be found that the same division may be made of men, with regard to their virtue. There are some whose principles are so firmly fixed, whose conviction is so constantly present to their minds, and who have raised in themselves such ardent wishes for the approbation of God, and the happiness with which he has promised to reward obedience and perseverance, that they rise above all other cares and considerations, and uniformly examine every action and desire, by comparing it with the divine commands. There are others in a kind of equipoise between good and ill; who are moved on the one part by riches or pleasure, by the gratifications of passion and the delights of sense; and, on the other, by laws of which they own the obligation, and rewards of which they believe the reality, and whom a very small addition of weight turns either way. The third class consists of beings immersed in pleasure, or abandoned to passion, without any desire of higher good, or any effort to extend their thoughts beyond immediate and gross satisfactions.

The second class is so much the most numerous, that it may be considered as comprising the whole body of mankind. Those of the last are not very many, and those of the first are very few; and neither the one nor the other falls much under the consideration of the moralist, whose precepts are intended chiefly for those who are endeavouring to go forward up the steeps of virtue, not for those who have already reached the summit, or those who are resolved to stay for ever in their present situation.—*Rambler*, No. 70.

WEDNESDAY, July 20.—MORNING, 10 to 1.

GREEK.

Examiner, Mr. BURCHAM.

(A.) HOMER\*, ODYSSEY, Book IX. v. 177—192.

Translate :

Ὡς εἰπὼν, ἀνὰ νηὸς ἔβην· ἐκέλευσα δ' ἑταίρους  
 αὐτοὺς τ' ἀμβάλειν, ἀνά τε πρυμνήσια λῦσαι.  
 οἱ δ' αἰψ' εἴσβαινον, καὶ ἐπὶ κληῖσι κάθιζον  
 ἐξῆς δ' ἐζόμενοι πολὴν ἄλα τύπτρον ἐρετμοῖς.  
 ἀλλ' ὅτε δὴ τὸν χῶρον ἀφικόμεθ', ἐγγυὺς ἔοντα,  
 ἔνθα δ' ἐπ' ἐσχατιῇ σπέος εἶδομεν, ἄγχι θαλάσσης,  
 ὑψηλὸν, δάφνησι κατηρεφές· ἔνθα δὲ πολλὰ  
 μῆλ', οἷές τε καὶ αἶγες ἰαύεσκον· περὶ δ' αὐλή  
 ὑψηλὴ δέδμητο κατωρυχέεσσι λίθοισιν,  
 μακρῆσιν τε πίτυσιν ἰδὲ δρυσὶν ὑψικόμοισιν.  
 ἔνθα δ' ἀνὴρ ἐνίαυε πελώριος, ὅς ῥά τε μῆλα  
 οἶος ποιμαίνεσκεν ἀπόπροθεν· οὐδὲ μετ' ἄλλους  
 πωλεῖτ', ἀλλ' ἀπάνευθεν ἐὼν ἀθεμίστια ἦδη.  
 καὶ γὰρ θαῦμ' ἐτέτυκτο πελώριον· οὐδὲ ἐώκει  
 ἀνδρὶ γε σιτοφάγῳ, ἀλλὰ ῥίῳ ὑλήεντι  
 ὑψηλῶν ὀρέων, ὅ, τε φαίνεται οἶον ἀπ' ἄλλων.

(B.) EURIPIDES†, MEDEA, v. 635—660.

στέργοι δέ με σωφροσύνα, ἀντιστροφὴ α'.  
 δώρημα κάλλιστον θεῶν  
 μηδέποτ' ἀμφιλόγους ὀργὰς, ἀκόρεστα τε νεΐκη,  
 θυμὸν ἐκπλήξασ' ἐτέ-  
 ροις ἐπὶ λέκτροις,  
 προσβάλοι δεινὰ Κύπρις, ἀ-  
 πτολέμους δ' εὐνάς σεβίζουσ',

\* Edit. Loewe.

† Edit. Porson.

ὄξύφρων κρίνοι λέχη γυναικῶν.

ὦ πατρίς, ὦ δῶμά τ' ἐμὸν,

στροφή β'.

μὴ δῆτ' ἀπολις γενοίμαν,

τὸν ἀμηχανίας ἔχουσα.

δυσπέρατον αἰῶν',

οἰκτρότατον ἀχέων

θανάτῳ, θανάτῳ πάρος δαμείην,

ἡμέραν τάνδ' ἐξανύσασα· μόχθων δ'

οὐκ ἄλλος ὑπερθεν,

ἢ γὰς πατρίας στέρεσθαι.

εἶδομεν, οὐκ ἐξ ἐτέρων

ἀντιστροφή β'.

μύθων ἔχομεν φράσασθαι·

σέ γὰρ οὐ πόλις, οὐ φίλων τις

ᾧκτισεν παθοῦσαν

δεινότατα παθέων.

ἀχάριστος ὄλοιθ', ὅτῳ πάρεστι

μὴ φίλους τιμᾶν, καθαρὰν ἀνοίξαν-

τα κλῆδα φρενῶν· ἐ-

μοὶ μὲν φίλος οὐποτ' ἔσται.

(C.) THUCYDIDES\*, Book I. chap. cxxi.

Ἡμεῖς δὲ νῦν καὶ ἀδικούμενοι τὸν πόλεμον ἐγείρομεν καὶ ἱκανὰ ἔχοντες ἐγκλήματα, καὶ ὅταν ἀμυνώμεθα Ἀθηναίους, καταθησόμεθα αὐτὸν ἐν καιρῷ. κατὰ πολλὰ δὲ ἡμᾶς εἰκὸς ἐπικρατῆσαι, πρῶτον μὲν πλήθει προὔχοντας καὶ ἐμπειρία πολεμικῆ, ἔπειτα ὁμοίως πάντα ἐς τὰ παραγγελλόμενα ἴοντας. ναυτικόν τε, ᾧ ἰσχύουσιν, ἀπὸ τῆς ὑπαρχούσης τε ἐκάστοις οὐσίας ἐξαρτυσόμεθα, καὶ ἀπὸ τῶν ἐν Δελφοῖς καὶ Ὀλυμπία χρημάτων δάνεισμα γὰρ ποιησάμενοι ὑπολαβεῖν οἰοί τ' ἐσμὲν μισθῷ μείζονι τοὺς ξένους αὐτῶν ναυβάτας. ὠνητὴ γὰρ Ἀθηναίων ἢ δύναμις μᾶλλον ἢ οἰκεία· ἢ δὲ ἡμετέρα ἦσσαν ἀν τοῦτο πάθει, τοῖς σώμασι τὸ πλεον ἰσχύουσα ἢ τοῖς χρήμασι. μιᾷ τε νίκη ναυμαχίας κατὰ τὸ εἰκὸς ἀλίσκονται· εἰ δ' ἀντίσχοιεν, μελετήσομεν καὶ ἡμεῖς ἐν πλεονί χρόνῳ τὰ ναυτικά. καὶ ὅταν τὴν ἐπιστήμην ἐς τὸ ἴσον καταστήσωμεν, τῇ γε εὐψυχία δὴ που περιεσόμεθα. ὃ γὰρ ἡμεῖς ἔχομεν φύσει ἀγαθὸν, ἐκείνοις οὐκ ἀν γένοιτο διδαχῇ; ὃ δ' ἐκείνοι ἐπιστήμη προὔ-

\* Edit. Bekker.



χουσι, καθαιρετέον ἡμῖν ἐστὶ μελέτη. χρήματα δ' ὅστ' ἔχειν ἐς αὐτὰ, οἴσομεν ἢ δεινὸν ἂν εἶη, εἰ οἱ μὲν ἐκείνων ξύμμαχοι ἐπὶ δουλείᾳ τῇ αὐτῶν φέροντες οὐκ ἀπεροῦσιν, ἡμεῖς δ' ἐπὶ τῷ τιμωρούμενοι τοὺς ἐχθροὺς καὶ αὐτοὶ ἅμα σώζεσθαι οὐκ ἄρα δαπανήσομεν, καὶ ἐπὶ τῷ μὴ ὑπ' ἐκείνων αὐτὰ ἀφαιρεθέντες αὐτοῖς τούτοις κακῶς πάσχειν.

(D.) DEMOSTHENES\*, OLYNTHIAC III. p. 40.

Ἄλλ' ὦ τᾶν, εἰ ταῦτα φαύλως, τά γ' ἐν αὐτῇ τῇ πόλει νῦν ἄμεινον ἔχει. καὶ τί ἂν εἰπεῖν τις ἔχοι; τὰς ἐπάλξεις ἅς κοινῶμεν, καὶ τὰς ὁδοὺς ἅς ἐπισκευάζομεν, καὶ κρήνας, καὶ λήρους; ἀποβλέψατε δὴ πρὸς τοὺς ταῦτα πολιτευομένους, ὧν οἱ μὲν ἐκ πτωχῶν πλούσιοι γεγόνασιν, οἱ δ' ἐξ ἀδόξων ἔντιμοι, ἔνιοι δὲ τὰς ἰδίας οἰκίας τῶν δημοσίων οἰκοδομημάτων σεμνοτέρας εἰσὶ κατεσκευασμένοι, ὅσῳ δὲ τὰ τῆς πόλεως ἐλάττω γέγονε, τοσοῦτω τὰ τούτων ἠὔξηται.

Τί δὴ τὸ πάντων αἴτιον τούτων, καὶ τί δῆποτε ἅπαντ' εἶχε καλῶς τότε καὶ νῦν οὐκ ὀρθῶς; ὅτι τὸ μὲν πρῶτον καὶ στρατεύεσθαι τολμῶν αὐτὸς ὁ δῆμος δεσπότης τῶν πολιτευομένων ἦν καὶ κύριος αὐτὸς ἀπάντων τῶν ἀγαθῶν, καὶ ἀγαπητὸν ἦν παρὰ τοῦ δήμου τῶν ἄλλων ἐκάστῳ καὶ τιμῆς καὶ ἀρχῆς καὶ ἀγαθοῦ τινὸς μεταλαβεῖν· νῦν δὲ τὸναντίον κύριοι μὲν οἱ πολιτευόμενοι τῶν ἀγαθῶν, καὶ διὰ τούτων ἅπαντα πράττεται, ὑμεῖς δ' ὁ δῆμος ἐκνενευρισμένοι καὶ περιηρημένοι χρήματα καὶ συμμάχους ἐν ὑπηρέτου καὶ προσθήκης μέρει γεγέννησθε, ἀγαπῶντες ἐὰν μεταδιδῶσι θεωρικῶν ὑμῖν ἢ βοῦδία πέμψωσιν οὗτοι, καὶ τὸ πάντων ἀνανδρότατον, τῶν ὑμετέρων αὐτῶν χάριν προσοφείλετε. οἱ δ' ἐν αὐτῇ τῇ πόλει καθείρξαντες ὑμᾶς ἐπάγουσιν ἐπὶ ταῦτα καὶ τιθασεύουσι χειροῦθεις αὐτοῖς ποιοῦντες.

1. What are Homer's expressions for "the Greeks"? What is meant by Thucydides when he says of Homer, οὐ μὴν οὐδὲ βαρβάρους εἶρηκε? Are there any real or apparent exceptions to that assertion? Why is it probable that the Greeks were not called Pelasgi at the time of the Trojan war?

2. Enumerate the extant plays of Euripides. To what class of dramatic compositions do the Orestes and the Alcestis belong? Where and about what time did Euripides die?

\* Edit. Bekker.

Mention some of the physical doctrines of Anaxagoras that are to be found in his dramas.

3. What is the rule with respect to the employment of a monosyllable as the second syllable of a tribrach or of a dactyl in Tragic Iambics? Give instances from Euripides or any other Greek Tragic writer in which it is violated. How do Æschylus, Sophocles and Euripides differ as regards the quantity of the last syllable in ἡμιν, ὑμιν?

4. What is the difference between γαμεῖν and γαμεῖσθαι? Quote instances from the Medea in which that distinction is not made. For ἀνοιξάντα, in extract (B.), one MS. has ἀνοιξάντι; confirm the reading in the text.

5. What is the purpose of the Memorabilia of Xenophon? In what other works of Xenophon is Socrates introduced? What are the main points in which other representations of Socrates by his contemporaries differ from the account of Xenophon?

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WEDNESDAY, July 20.—AFTERNOON, 3 to 6.

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GREEK.

Examiner, Rev. Dr. JERRARD.

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Translate:

(A.) SOPHOCLES\*, ANTIGONE, line 904—928.

καίτοι σ' ἐγὼ τίμησα τοῖς φρονούσιν εὖ.  
 οὐ γάρ ποτ' οὐτ' ἂν εἰ τέκνων μήτηρ ἔφυν  
 οὐτ' εἰ πόσις μοι κατθανὼν ἐτήκετο,  
 βία πολιτῶν τόνδ' ἂν ἠρόμην πόνον.

\* Edit. Dindorf.

τίνος νόμου δὴ ταῦτα πρὸς χάριν λέγω ;  
 πόσις μὲν ἂν μοι κατθανόντος ἄλλος ἦν,  
 καὶ παῖς ἀπ' ἄλλου φωτὸς, εἰ τοῦδ' ἤμπλακον,  
 μητρὸς δ' ἐν "Αἰδοῦ καὶ πατρὸς κεκευθότιον  
 οὐκ' ἔστ' ἀδελφὸς ὅστις ἂν βλάστοι ποτέ.  
 τοιῶδε μέντοι σ' ἐκπροτιμήσασ' ἐγὼ  
 νόμῳ, Κρέοντι ταῦτ' ἔδοξ' ἀμαρτάνειν  
 καὶ δεινὰ τολμᾶν, ὧ κασίγνητον κᾶρα.  
 καὶ νῦν ἄγει με διὰ χερῶν οὔτω λαβῶν,  
 ἄλεκτρον, ἀνυμέναιον, οὔτε του γάμου  
 μέρος λαχοῦσαν οὔτε παιδείου τροφῆς,  
 ἀλλ' ὧδ' ἔρημος πρὸς φίλων ἢ δύσμορος  
 ζῶσ' εἰς θανόντων ἔρχομαι κατασκαφᾶς·  
 ποῖαν παρεξελθούσα δαιμόνων δίκην ;  
 τί χρὴ με τὴν δύστηνον εἰς θεοὺς ἔτι  
 βλέπειν ; τί ν' αὐδᾶν ξυμμάχων ; ἐπεὶ γε δὴ  
 τὴν δυσσέβειαν εὐσεβοῦσ' ἐκτησάμην.  
 ἀλλ' εἰ μὲν οὖν τάδ' ἐστὶν ἐν θεοῖς καλὰ,  
 παθόντες ἂν ξυγγοῖμεν ἡμαρτηκότες·  
 εἰ δ' οἷδ' ἀμαρτάνουσι, μὴ πλείω κακὰ  
 πάθοιεν ἢ καὶ δρῶσιν ἐκδίκως ἐμέ.

## (B.) HERODOTUS\*, Book II. pp. 308—309.

Τοὺς δὲ βοῦς τοὺς ἔρσενας τοῦ Ἐπάφου εἶναι νομίζουσι, καὶ  
 τούτου εἵνεκα δοκιμάζουσι αὐτοὺς ὧδε. τρίχα ἦν καὶ μίην ἴδη-  
 ται ἐπεοῦσαν μέλαιναν, οὐ καθαρὸν εἶναι νομίζει. δίζηται δὲ  
 ταῦτα ἐπὶ τούτῳ τεταγμένος τῶν τις ἱρέων, καὶ ὀρθοῦ ἔστεῶτος  
 τοῦ κτήνεος καὶ ὑπτίου, καὶ τὴν γλῶσσαν ἐξειρύσας, εἰ καθαρὴ  
 τῶν προκειμένων σημητίων, τὰ ἐγὼ ἐν ἄλλῳ λόγῳ ἐρέω. κατορᾶ  
 δὲ καὶ τὰς τρίχας τῆς οὐρῆς, εἰ κατὰ φύσιν ἔχει πεφυκυίας. ἦν  
 δὲ τουτέων πάντων ἢ καθαρὸς, σημαίνεται βύβλῳ περὶ τὰ κέρεα  
 εἰλίσσω· καὶ ἔπειτα γῆν σημαντρίδα ἐπιπλάσας, ἐπιβάλλει  
 τὸν δακτύλιον· καὶ οὔτω ἀπάγουσι. ἀσήμαντον δὲ θύσαντι  
 θάνατος ἢ ζημὴ ἐπικέεται. δοκιμάζεται μὲν νυν τὸ κτήνος  
 τρόπῳ τοιῶδε. Θυσίῃ δέ σφι ἤδε κατέστηκε. ἀγαγόντες τὸ  
 σεσημασμένον κτήνος πρὸς τὸν βωμὸν, ὅκου ἂν θύωσι, πυρὴν

\* Edit. Schweighæuser.



καίουσι. ἔπειτα δὲ ἐπ' αὐτοῦ οἶνον κατὰ τοῦ ἱρήϊου ἐπισπείσαντες, καὶ ἐπικαλέσαντες τὸν θεὸν, σφάζουσι· σφάξαντες δὲ, ὑποτάμνουσι τὴν κεφαλὴν. σῶμα μὲν δὴ τοῦ κτήνεος δείρουσι· κεφαλῇ δὲ κείνῃ πολλὰ καταρησάμενοι, φέρουσι, τοῖσι μὲν ἂν ἢ ἀγορῇ, καὶ Ἑλληνέσσι σφίσι ἔωσι ἐπιδήμιοι ἔμποροι, οἱ δὲ φέροντες ἐς τὴν ἀγορὴν, ἀπ' ὧν ἔδοντο· τοῖσι δὲ ἂν μὴ παρέωσι Ἑλληνες, οἱ δ' ἐκβάλλουσι ἐς τὸν ποταμόν. καταρέονται δὲ, τάδε λέγοντες, τῆσι κεφαλῆσι· “εἴ τι μέλλοι ἢ σφίσι τοῖσι θύουσι, ἢ Αἰγύπτῳ τῇ συναπάσῃ κακὸν γενέσθαι, ἐς κεφαλὴν ταύτην τραπέσθαι.”

(C.) PLATO\*, CRITO, pp. 374—379.

ΣΩ. Ἄλλ', ὦ Κρίτων, τύχῃ ἀγαθῇ. εἰ ταύτῃ τοῖς θεοῖς φίλον, ταύτῃ ἔστω. οὐ μέντοι οἶμαι ἤξειν αὐτὸ τήμερον.

ΚΡ. Πόθεν τοῦτο τεκμαίρει;

ΣΩ. Ἐγὼ σοι ἐρῶ. τῇ γάρ που ὑστεραία δεῖ με ἀποθνήσκειν ἢ ἢ ἂν ἔλθῃ τὸ πλοῖον.

ΚΡ. Φασί γέ τοι δὴ οἱ τούτων κύριοι.

ΣΩ. Οὐ τοίνυν τῆς ἐπιούσης ἡμέρας οἶμαι αὐτὸ ἤξειν, ἀλλὰ τῆς ἐτέρας. τεκμαίρομαι δὲ ἔκ τινος ἐνυπνίου ὃ ἐώρακα ὀλίγον πρότερον ταύτης τῆς νυκτός· καὶ κινδυνεύεις ἐν καιρῷ τινὶ οὐκ ἐγείραί με.

ΚΡ. Ἦν δὲ δὴ τί τὸ ἐνύπνιον;

ΣΩ. Ἐδόκει τίς μοι γυνὴ προσελθοῦσα καλὴ καὶ εὐειδής, λευκὰ ἱμάτια ἔχουσα, καλέσαι με καὶ εἰπεῖν ὦ Σώκρατες, ἡματί κεν τριτάτῳ Φθίην ἐρίβωλον ἴκοιο.

ΚΡ. Ὡς ἄτοπον τὸ ἐνύπνιον, ὦ Σώκρατες.

ΣΩ. Ἐναργὲς μὲν οὖν, ὡς γ' ἐμοὶ δοκεῖ, ὦ Κρίτων.

ΚΡ. Λίαν γε, ὡς ἔοικεν. ἀλλ' ὦ δαιμόνιε Σώκρατες, ἔτι καὶ νῦν ἐμοὶ πείθου καὶ σώθητι, ὡς ἐμοί, ἐὰν σὺ ἀποθάνῃς, οὐ μίλα ξυμφορὰ ἐστίν, ἀλλὰ χωρὶς μὲν τοῦ ἐστερηῆσθαι τοιούτου ἐπιτηδείου οἶον ἐγὼ οὐδένα μὴ ποτε εὐρήσω, ἔτι δὲ καὶ πολλοῖς δόξω, οἱ ἐμὲ καὶ σὲ μὴ σαφῶς ἴσασιν, ὡς οἶος τ' ὧν σε σώζειν, εἰ ἤθελον ἀναλίσκειν χρήματα, ἀμελήσαι. καὶ τοι τίς ἂν αἰσχίων εἶη ταύτης δόξα, ἢ δοκεῖν χρήματα περὶ πλείονος ποιεῖσθαι ἢ φίλους; οὐ γὰρ πείσονται οἱ πολλοὶ ὡς σὺ αὐτὸς οὐκ ἠθέλησας ἀπιέναι ἐνθένδε ἡμῶν προθυμουμένων.

\* Edit. Bekker.



ΣΩ. Ἀλλὰ τί ἡμῖν, ὦ μακάριε Κρίτων, οὕτω τῆς τῶν πολλῶν δόξης μέλει; οἱ γὰρ ἐπιεικέστατοι, ὧν μᾶλλον ἄξιον φροντίζειν, ἠγήσονται αὐτὰ οὕτω πεπρᾶχθαι ὥς περ ἂν πραχθῆ.

1. (A.) τοῖς φρονοῦσιν εὖ. Give other examples of this construction, and explain the full meaning and use of the Dative case in Greek. ἡ δύσμορος—τὴν δύστηνον—what is the force of the Article in each of these instances?

2. ἡμαρτηκότες—why is the participle employed here? ἁμαρτάνουσι—why is this word used in the indicative? ἔφυν—ετήκετο—ἠρόμην—why are these verbs in the Imperfect tense and not in the Aorist? οὐ γάρ ποτ' οὐτ' ἂν κ.τ.λ.—on what historical fact is this passage supposed to be founded?

3. (B.) What other peculiarities does Herodotus notice in the religious rites and ideas of the Ægyptians? Is the origin of any of them to be found in those of a more ancient people?

4. καθαρὴ τῶν προκειμένων. Explain and illustrate this use of the Genitive.

5. (C.) What distinction has been made by Grammarians between ὄνειρος, ὄραμα, χρηματισμὸς, ἐνύπνιον, and φάντασμα? ἡματί κεν τριτάτω, κ.τ.λ.—Whence is this quotation taken? and in what manner, precisely, does it appear to be applied by Socrates?

6. μὴ σαφῶς ἴσασιν—why not οὐ? Can the mood of ἀμελήσαι be satisfactorily explained?

7. Describe the character of Prometheus as drawn by Æschylus, and refer to what you consider the most sublime passages of that Tragedy.

THURSDAY, July 21.—MORNING, 10 to 1.

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LATIN.

*Examiner*, Mr. BURCHAM.

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Translate :

(A.) LIVY\*, Book XXXI. chap. 26.

Tentata et ab ipso rege obpugnatio ejus castelli est. sed naves Romanæ, a Piræeo venientes, intromissumque præsidium absistere incepto coëgerunt. Diviso deinde exercitu, rex cum parte Philoclem Athenas mittit, cum parte ipse Piræeum pergit : ut, quum Philocles subeundo muros, et comminanda obpugnatione contineret urbe Athenienses, ipsi Piræeum levi cum præsidio relictum expugnandi facultas esset. Ceterum nihilo ei Piræei, quam Eleusinis, facilior, iisdem fere defendentibus, obpugnatio fuit. A Piræeo Athenas repente duxit, inde eruptione subita peditum equitumque inter angustias semirutum muri, qui brachiis duobus Piræeum Athenis jungit, repulsus : omissa obpugnatione urbis, diviso cum Philocle rursus exercitu, ad vastandos agros profectus, quum priorem populationem sepulcris circa urbem diruendis exercuisset, ne quid inviolatum relinqueret, templa Deum, quæ pagatim sacrata habebant, dirui atque incendi jussit. Exornata eo genere operum eximie terra Attica, et copia domestici marmoris, et ingeniis artificum, præbuit huic furori materiam. neque enim diruere modo ipsa templa, ac simulacra evertere satis habuit ; sed lapides quoque, ne integri cumularent ruinas, frangi jussit : et, postquam non tam ira satiata, quam iræ exercendæ materia hæc deerat, agro hostium in Bœotiam excessit, nec aliud quidquam dignum memoria in Græcia egit.

\* Edit. Ernesti.







Dixi me pigrum proficiscenti tibi, dixi  
 Talibus officiis prope mancum; ne mea sævus  
 Jurgares ad te quod epistola nulla veniret.  
 Quid tum profeci, mecum facientia jura  
 Si tamen attentas? Quereris super hoc etiam, quod  
 Exspectata tibi non mittam carmina mendax.  
 Luculli miles collecta viatica multis  
 Ærumnis, lassus dum noctu stertit, ad assem  
 Perdiderat; post hoc vehemens lupus, et sibi et hosti  
 Iratus pariter, jejunis dentibus acer,  
 Præsidium regale loco dejecit, ut aiunt,  
 Summe munito et multarum divite rerum.  
 Clarus ob id factum donis ornatur honestis;  
 Accipit et bis dena super sestertia nummum.  
 Forte sub hoc tempus castellum evertere prætor  
 Nescio quod cupiens, hortari cœpit eundem  
 Verbis, quæ timido quoque possent addere mentem:  
 "I, bone, quo virtus tua te vocat; i pede fausto,  
 Grandia laturus meritorum præmia! Quid stas?"  
 Post hæc ille catus, quantumvis rusticus, "Ibit,  
 Ibit eo, quo vis, qui zonam perdidit," inquit.

1. In how many books was the history of Livy originally comprised, and how many are extant? To what period was his work carried down, and where does the last extant book terminate? To whom have the Epitomes been attributed?

2. What does a numeral adverb express when it is joined to Sestertium? Give the etymology of Sestertius. What part of a denarius was a sesterce? What are the sums mentioned in the following passages: "L. Cincio H-S  $\overline{XXCD}$  constitui me curaturum." "L. Cincio H-S  $\text{CCIOO CCIOO CCCC}$  pro signis Megaricis, ut tu ad me scripseras, curavi." "Domum Rubirianam M. Fonteius emit H-S  $\text{CCCOOOO XXX.}$ "

3. Arrange the works of Horace in the chronological order adopted by Bentley. State any objections to that arrangement. What is the date of the Carmen Sæculare? In what different significations is the term 'Epode' used? Under

which do the Epodes of Horace fall? What internal evidence do they contain as to the time at which they were written?

4. Where was the saltus Teutoborgiensis; and for what event is it remarkable? Where does Tacitus place the source of the Albis? Exhibit in a map the course of the Rhine from its source to the sea, with the countries through which it flows, and its chief tributary rivers.

5. What is the difference in respect of conjugation between transitive and intransitive Verbs derived from nouns? Mention the various ways in which the terminations *-lus, -la, -lum* of Diminutives are appended to the primitive nouns. What does the termination *-itas* in derivative substantives denote? Which of the two forms does Tacitus prefer,—*consensio, consensus*—*motus, motio*?

---

THURSDAY, July 21.—AFTERNOON, 3 to 6.

---

LATIN.

*Examiner, Rev. Dr. JERRARD.*

---

Translate :

(A.) VIRGIL\*, ÆNEID, Book V. line 654—684.

At matres primo, ancipites, oculisque malignis  
 Ambiguae, spectare ratis, miserum inter amorem  
 Praesentis terrae, fatisque vocantia regna :  
 Quum dea se paribus per coelum sustulit alis,  
 Ingentemque fuga secuit sub nubibus arcum.  
 Tum vero adtonitae monstris, actaeque furore,  
 Conclamant, rapiuntque focis penetralibus ignem ;

\* Edit. Heyne.

Pars spoliant aras, frondem ac virgulta facesque  
 Conjiciunt. Furit inmissis Volcanus habenis  
 Transtra per et remos et pictas abiete puppis.  
 Nuntius Anchisae ad tumulum cuneosque theatri  
 Incensas perfert nauis Eumelus; et ipsi  
 Respiciunt atram in nimbo volitare fauillam.  
 Primus et Ascanius, cursus vt laetus equestris  
 Ducebat, sic acer equo turbata petiuit  
 Castra; nec exanimes possunt retinere magistri.  
 Quis furor iste nouus? quo nunc, quo tenditis, inquit,  
 Heu miserae ciues? non hostem, inimicaque castra  
 Argium; vestras spes vritis. En, ego vester  
 Ascanius: galeam ante pedes proiecit inanem,  
 Qua ludo indutus belli simulacra ciebat.  
 Adcelerat simul Æneas, simul agmina Teucrum.  
 Ast illae diuersa metu per litora passim  
 Diffugiunt; siluasque, et sicubi concaua furtim  
 Saxa, petunt. Piget incepti, lucisque; suosque  
 Mutatae adgnoscent, excussa pectore Iuno est.  
 Sed non idcirco flammae atque incendia vires  
 Indomitas posuere: vdo sub robore viuit  
 Stuppa vomens tardum fumum, lentusque carinas  
 Est vapor, et toto descendit corpore pestis;  
 Nec vires heroum infusaque flumina prosunt.

## (B.) SALLUST\*, JUGURTHA, Chap. xlviii.

Jugurtha ubi Metelli dicta cum factis composuit, ac se suis  
 artibus tentari animadvortit; quippe cui verbis pax nuncia-  
 batur, ceterum re bellum asperrimum erat: urbs maxuma  
 alienata, ager hostibus cognitus, animi popularium tentati,  
 coactus rerum necessitudine, statuit armis certare. Igitur  
 explorato hostium itinere, in spem victoriae adductus ex op-  
 portunitate loci, quas maxumas copias potest omnium generum  
 parat, ac per tramites occultos exercitum Metelli antevenit.  
 Erat in ea parte Numidiae, quam Adherbal in divisione pos-  
 sederat, flumen oriens a meridie, nomine Muthul; a quo

\* Edit. Frotscher.



aberat mons ferme millia passuum XX tractu pari, vastus ab natura et humano cultu: sed ex eo medio quasi collis oriebatur, in immensum pertinens, vestitus oleastro ac mirtetis, aliisque generibus arborum, quae humi arido atque arenoso gignuntur. Media autem planities deserta, penuria aquae: praeter flumini propinqua loca: ea consita arbustis pecore atque cultoribus frequentabantur.

(C.) CICERO\*, ORATIO IN CATILINAM, Chap. 8.

Vnum genus est eorum, qui magno in aere alieno, maiores etiam possessiones habent, quarum amore adducti dissolvi nullo modo possunt. Horum hominum species est honestissima; sunt enim locupletes; voluntas vero et causa impudentissima. Tu agris, tu aedificiis, tu argento, tu familia, tu rebus omnibus ornatus et copiosus sis, et dubites de possessione detrahere, acquirere ad fidem? Quid enim exspectas? bellum? Quid? ergo in vastatione omnium tuas possessiones sacrosanctas futuras putas? An tabulas novas? errant, qui istas a Catilina exspectant. Meo beneficio tabulae novae proferentur, verum auctionariae. Neque enim isti, qui possessiones habent, alia ratione ulla salvi esse possunt. Quod si maturius facere voluissent, neque (id quod stultissimum est) certare cum usuris fructibus praediorum, et locupletioribus his et melioribus civibus uteremur. Sed hosce homines minime puto pertimescendos, quod aut deduci de sententia possunt; aut, si permanebunt, magis mihi videntur vota facturi contra rempublicam, quam arma laturi.

Alterum genus est eorum, qui quamquam premuntur aere alieno, dominationem tamen exspectant; rerum potiri volunt; honores, quos quiescens republica desperant, perturbata consequi se posse arbitrantur. Quibus hoc praecipendum videtur, unum scilicet et idem, quod ceteris omnibus, ut desperent, se id, quod conantur, consequi posse. \* \* \* \* \* Quod si iam sint id, quod cum summo furore cupiunt, adepti, num illi in cinere urbis et sanguine civium, quae mente consecrata ac nefaria concupierunt, consules se ac dictatores,

\* Edit. Orellii.



aut etiam reges sperant futuros? Non vident id se cupere, quod si adepti fuerint, fugitivo alicui, aut gladiatori concedi sit necesse?

1. On what traditional stories relating to Æneas has Virgil founded the Æneid? How has he contrived to introduce into that Poem allusions to the most important events in the History of Rome? Is any similar artifice employed by Milton in the Paradise Lost? Quote the verses in which Virgil refers to Cæsar—to Pompey—to Hannibal—and the Scipios. How much time is occupied by the Action of the Æneid?

2. What is the oldest extant MS. of any portion of Virgil's works? To what century does it in all probability belong?

3. What important work of Sallust has been almost wholly lost? Produce testimony from ancient Authors to his great excellence as a Writer. By what other celebrated Roman Historian does his style appear to have been much imitated?

4. Before whom and on what occasion was the 2nd Oration against Catiline delivered? What was the ultimate consequence to Cicero of the part which he took against Catiline?

5. What is the origin of the phrase "tabulæ novæ"? Uteremur—why not *usi essemus*? *Pertimescendos*—could the word *pertimendos* be used? Distinguish between *timor*—*metus*—*formido*—*terror*.

6. Retranslate into Latin prose :

"My cause the Senate had espoused openly; the Equestrian Order, most zealously; the whole of Italy, in a public manner; all good men, with interest and earnestness. I had been engaged in events of such a nature that my actions were not those of an individual merely, but of the representative and leader of the Will of the entire People; and not only redounded to my glory as Consul, but were the means of preserving all the citizens of Rome—nay, almost all the nations of the Earth—from one common ruin."

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Colleges, &c.

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EXAMINATIONS

FOR THE DEGREE OF

BACHELOR OF MEDICINE

IN THE YEAR 1842.



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FIRST EXAMINATION.





EXAMINERS.

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*Anatomy and Physiology.*

FRANCIS KIERNAN, F.R.S.  
Professor SHARPEY, M.D., F.R.S.

*Chemistry.*

Professor DANIELL, F.R.S.

*Botany.*

Rev. Professor HENSLOW.

*Materia Medica and Pharmacy.*

JONATHAN PEREIRA, M.D., F.R.S.

## EXHIBITIONERS AND MEDALLISTS.

### *Anatomy and Physiology.*

1839. No Exhibition or Medal awarded.
1840. EDMUND PARKES.—Exhibition and Gold Medal.  
GEORGE MURRAY HUMPHRY.—Gold Medal.
1841. EDWARD BALLARD.—Exhibition and Gold Medal.  
THOMAS PATRICK MATTHEW.—Gold Medal.
1842. R. DAWSON HARLING.—Exhibition and Gold Medal.  
WILLIAM THOMAS EDWARDS.—Gold Medal.

### *Chemistry.*

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JOSEPH JOHN FOX.—Gold Medal.
1842. ROBERT HAINES.—Exhibition and Gold Medal.

### *Materia Medica and Pharmaceutical Chemistry.*

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1841. THOMAS INMAN.—Exhibition and Gold Medal.  
JOHN JONES DAVIES.—Gold Medal.
1842. HENRY MARCH WEBB.—Exhibition and Gold Medal.  
WILLIAM THOMAS EDWARDS.—Gold Medal.

# FIRST EXAMINATION.

---

## PASS EXAMINATION.

---

*MONDAY, August 1.—MORNING, 10 to 1.*

---

### ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

---

1. DESCRIBE that portion of the Basis of the Cranium which is bounded anteriorly by the suture uniting the horizontal plates of the superior maxillary and palate bones, and by the anterior margins of the pterygoid processes, posteriorly by the superior transverse ridge of the occipital bone, and laterally by the ridges separating the zygomatic from the temporal fossæ, and by the posterior roots of the zygomatic processes of the temporal bones. Commence the description at the anterior part; mention the openings, with the parts occupying them, in the order in which they are seen, and the attachments of the muscles and ligaments.

2. Describe the Inferior Maxillary Bone, its mode of ossification and the changes which it undergoes at different periods of life. Describe also the Articulation of the Lower Jaw and its movements, mentioning the muscles by which they are severally effected.

3. Give the anatomy of the Eye-lids, and of the Lacrymal



Apparatus, comprehending the Lacrymal gland and its ducts, the puncta lacrymalia, lacrymal sac and canal.

4. The viscera of the Abdomen having been removed, describe the muscles, vessels and nerves seen on the posterior wall of that cavity. Describe the lumbar plexus of nerves, and the course of its branches within the limits of the lumbar and iliac regions. Describe also the parts relating to Femoral hernia which occupy the space included between Poupart's ligament and the margin of the pelvis, as far as they can be seen from within.

5. Give an account of the form and structure of Serous Membranes in general, the nature of their secretion and the purposes which they serve.

---

*MONDAY, August 1.—AFTERNOON, 3 to 6.*

---

## ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

---

1. Describe the articulating surfaces of the Astragalus, and the surfaces with which they are articulated. What motions take place in the several joints into the formation of which this bone enters, and to what classes of joints do they respectively belong? Enumerate the muscles of the leg and foot, 1st, in the order in which they are met with in dissection; 2nd, classifying them according to their actions; and mention the insertions of the muscles which extend the foot.

2. State the dissection required to expose the course of the Deep Cervical Artery on the posterior aspect of the vertebræ; commencing with the integuments on the back of the

neck and describing the different parts exposed in the dissection.

3. Describe the form, structure and situation of the Submaxillary and Sublingual glands, stating the steps of the dissection required to display them *in situ*, and describing the parts immediately contiguous to them.

4. The upper and the posterior parts of the Cerebrum, the Corpus Callosum with the Fornix and Velum being removed, and the fourth ventricle being laid open by an incision through the middle of the Cerebellum, describe the parts brought into view, commencing the description anteriorly.

5. Give the anatomy of the Auricles of the Heart; comprehending their situation and connections, their external and internal configuration, and the structure of their parietes. What is the usual weight of the heart in the adult, and how does it differ according to age and sex?

---

TUESDAY, August 2.—MORNING, 10 to 1.

---

## CHEMISTRY.

*Examiner*, Professor DANIELL.

---

1. A solution of a Salt is contained in a bottle marked A, placed before you with appropriate tests; of what acid and base is it composed? what are their equivalent numbers upon the Hydrogen Scale? and what is the nature of the changes produced by the tests?

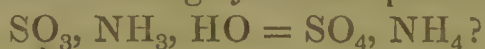
2. A solution of another Salt, marked B, is also placed before you with appropriate tests; what is the acid of the salt, what its probable base, its equivalent number, and the nature of the changes produced by the tests?

3. What is meant by the Atomic Theory? State its leading doctrines and explain them by examples.

4. How may the Chemical Equivalent of a substance be determined?

5. What advantage is there in stating the proportions of the ingredients of compound bodies in Equivalents over a statement of the same proportions per cent?

6. What do the following symbols represent:



and what is the theory to which the equation refers?

7. What general principle do we avail ourselves of for the measurement of temperature, and how is it applied?

8. Describe the construction and explain the action of the Electrophorus.

9. What are the forces which may be developed by a Voltaic Current? Briefly exemplify each when called into action.

---

*TUESDAY, August 2.—AFTERNOON, 3 to 6.*

---

STRUCTURAL AND PHYSIOLOGICAL BOTANY.—MATERIA MEDICA AND PHARMACY.

---

STRUCTURAL AND PHYSIOLOGICAL BOTANY.

*Examiner, Prof. HENSLOW.*

1. Distinguish between Prickles, Thorns, and Bristles.
2. Explain the structure of a Cremocarpium.
3. Compare the principal structural differences in the flowers and fruit of Clematis, Anemone, Ranunculus, Helle-

borus, and *Pæonia* (upon which five subordinate groups or tribes of *Ranunculaceæ* depend).

4. What is the chief characteristic difference in the structure of the flowers of plants grouped under the tribes *Alsineæ* and *Sileneæ*?

5. How are the leaves disposed in *Chenopodiaceæ*, and have they stipules or not?

6. How is the origin of the vesicles of the cellular tissue explained?

7. Explain the general process of fertilization; and describe its peculiar modifications in *Orchidaceæ*.

Describe the specimens marked,

8. }  
9. }  
10. }

## MATERIA MEDICA AND PHARMACY.

*Examiner, Dr. PEREIRA.*

1. Describe the mode of preparing Tartaric Acid according to the London Pharmacopœia. Explain the chemical changes which occur in the process. State the atomic constitution of the acid in both the dry and crystallized states. Give the tests by which the acid may be distinguished from other vegetable acids, and by which the absence of the Bitartrate of Potash in its powder may be ascertained. Lastly, state what are the quantities of Carbonate of Potash (the granulated salt of the shops), Bicarbonate of Potash (crystallized), Carbonate of Soda (crystallized), *Sodæ sesquicarbonas* Ph. Lond., and *Ammoniæ sesquicarbonas* Ph. Lond., which are respectively required to saturate one scruple of the crystallized acid.

2. You are requested to give a botanical description of *Hyoscyamus niger*; describing successively the root, stem, leaves, flowers, fruit and seeds; stating its duration, and its



position in both the Sexual System of Linnæus and the Natural System of DeCandolle. Mention the principal symptoms which characterize its operation on the system in both medicinal and poisonous doses. State in what cases its use is preferable to that of opium, and in what doses you would administer the Tincture and Extract.

3. Briefly state the circumstances which favour the view that the absorption of a medicine is necessary to the production of its remote effects.

4. In what cases are Ferruginous Tonics to be preferred to the Bitter Vegetable Tonics?

5. What is the specific gravity of *Spiritus rectificatus*, Ph. Lond., and of *Spiritus tenuior*? What are the relative proportions, by volume, of rectified spirit and water which are required to constitute proof spirit? By what tests is the presence of *Oil of Corn Spirit* in Rectified Spirit to be detected?

6. What quantities of the following preparations contain respectively one grain of Opium? *Confectio Opii*, *Pilulæ Saponis Compositæ*, *Pulvis Cretæ compositus cum Opio*, *Tinctura Opii*, *Tinctura Camphoræ composita*, and *Pulvis Ipecacuanhæ compositus*.

---

FRIDAY, August 5th.

## CHEMISTRY, AND MATERIA MEDICA AND PHARMACY.

By Vivâ Voce Interrogation, and Demonstration from Specimens.

*Examiners*, Prof. DANIELL and Dr. PEREIRA.

*MONDAY, August 8th.*

ANATOMY AND PHYSIOLOGY.

By Vivâ Voce Interrogation, and Demonstration from Preparations and the recent Subject.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

## EXAMINATION FOR HONOURS.

---

*THURSDAY, August 11.—MORNING, 10 to 1.*

---

### ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

---

1. GIVE the dissection required to show the origin, course and distribution of the Occipital Artery; describing the several parts exposed in the dissection.
  2. Describe the structure, chemical composition and arrangement of the several textures of the Human Teeth. Describe also the origin, formation and mode of eruption of the Temporary and Permanent Teeth.
- 

*THURSDAY, August 11.—AFTERNOON, 3 to 6.*

---

### ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

---

1. Describe the dissection required to display the Axillary Plexus of nerves and its branches, from the external border

of the Scalenus Anticus muscle to the lower border of the Axilla, describing the parts successively brought into view in the course of the dissection.

2. Give an account of the structure and mode of growth of the Epidermis and Epithelium. Describe the intimate structure of Elastic Tissue, and mention the parts of the human body in which it is found.

---

FRIDAY, August 12.—MORNING, 10 to 1.

---

CHEMISTRY.

*Examiner*, Professor DANIELL.

---

1. What is meant by *Specific* and *Latent* Heat? Explain with reference to examples, and state the general modes of estimating each.

2. What is meant by the Polarization of Heat? How may Heat be polarized?

3. State Dr. Faraday's theory of Electrical Induction, and the principal facts upon which it is founded.

4. How is the force conducted in the different parts of a Voltaic Circuit? and what is the law of its conduction?

5. Having obtained the amount per cent. of Carbon, Hydrogen, and Oxygen in a Vegetable substance as follows,

|         |      |
|---------|------|
| C . . . | 42·4 |
| H . . . | 6·5  |
| O . . . | 51·1 |
|         | 100· |



14 FIRST EXAMINATION. EXAMINATION FOR HONOURS.

how would you proceed to calculate its composition in Equivalents? and how might the result be confirmed?

6. What is the view which must be taken of the Monobasic, Bibasic, and Tribasic Phosphates upon the Binary Theory of Salts?

7. What are the principal chemical characters of Lithic and Phosphatic Calculi?

8. What is the constitution of Urea? How may it be formed artificially? and how may it be detected in the urine?

---

FRIDAY, August 12.—AFTERNOON, 3 to 6.

---

MATERIA MEDICA AND PHARMACEUTICAL  
CHEMISTRY.

*Examiner, Dr. PEREIRA.*

---

1. Describe the method of obtaining *Oil of Vitriol*. Explain the theory of the process. How would you detect the presence of Lead, Nitrous Acid, and Arsenious Acid in Oil of Vitriol?

2. What are the salts with which commercial Bromide of Potassium is frequently contaminated, and by what tests can you detect them? What are the characters of pure Creasote? By what means would you ascertain whether *Ferri Potassio-Tartras*, Ph. Lond., had been properly prepared?

3. What effect on the gums is produced by the absorption of Lead?

4. In what cases are Mercury and Iodine respectively in-

icated as resolvents? And what are the circumstances which lead you to prefer the one or the other of these medicines?

5. By what botanical characters would you distinguish *Conium maculatum* from *Æthusa Cynapium*? By what characters is the fruit of *Conium maculatum* distinguished from that of *Pimpinella Anisum*?

6. By what test is the presence of *Salicin* in a decoction of Willow-bark to be ascertained?

7. What are the effects and uses of *Lobelia inflata*? In what form and dose would you administer it?

8. Name the substances respectively numbered 1, 2, 3, 4, 5, 6.

# CANDIDATES

WHO PASSED THE FIRST EXAMINATION.

## PASS EXAMINATION.

[The names are arranged alphabetically.]

### *First Division.*

Medical Schools.

|                               |                             |
|-------------------------------|-----------------------------|
| BELL, HUGH .....              | Guy's Hospital.             |
| BROWN, FREDERICK JAMES .....  | University College.         |
| BROWNE, HENRY.....            | King's College.             |
| BROWNE, JOSEPH HULLETT .....  | Guy's Hospital.             |
| EDWARDS, WILLIAM THOMAS ....  | University College.         |
| ELLISON, JAMES .....          | St. Bartholomew's Hospital. |
| HAINES, ROBERT.....           | St. Thomas's Hospital.      |
| HARLING, ROBERT DAWSON.....   | University College.         |
| MARSHALL, FREDERICK WILLIAM.  | University College.         |
| PARSEY, WILLIAM HENRY.....    | King's College.             |
| PENNELL, JOHN WILSON CROKER.. | Guy's Hospital.             |
| RUSSELL, JAMES .....          | King's College.             |
| SPITTA, ROBERT JOHN .....     | St. George's Hospital.      |
| TAYLOR, HENRY SHARP.....      | University College.         |
| TUDOR, RICHARD .....          | University College.         |
| WARD, STEPHEN HENRY .....     | London Hospital.            |
| WEBB, HENRY MARCH .....       | Guy's Hospital.             |

### *Second Division.*

|                               |                                   |
|-------------------------------|-----------------------------------|
| CANNON, HENRY MILLS.....      | King's College.                   |
| CRUTCH, GEORGE .....          | St. George's Hospital.            |
| FIELD, FREDERICK .....        | Birmingham Roy. Sch. of Medicine. |
| FORSTER, JOHN COOPER.....     | Guy's Hospital.                   |
| HUMPHREYS, THOMAS' .....      | University College.               |
| MANSON, FREDERICK ROBERT .... | King's College.                   |
| ROUTH, CHARLES HENRY FELIX .. | University College.               |
| TIMMS, GODWIN WILLIAM.....    | University College.               |

## EXAMINATION FOR HONOURS.

[The names are arranged in the order of proficiency.]

### *Anatomy and Physiology.*

|                             |                                                |                     |
|-----------------------------|------------------------------------------------|---------------------|
| HARLING, ROBERT DAWSON      | { <i>Exhibition and</i><br><i>Gold Medal</i> } | University College. |
| EDWARDS, WM. THOMAS         | .....( <i>Gold Medal</i> ).....                | University College. |
| BROWN, FREDERICK JAMES      | .....                                          | University College. |
| PARSEY, WILLIAM HENRY       | .....                                          | King's College.     |
| WEBB, HENRY MARCH           | .....                                          | Guy's Hospital.     |
| MARSHALL, FREDERICK WILLIAM | .....                                          | University College. |

### *Chemistry.*

|                             |                                            |                     |
|-----------------------------|--------------------------------------------|---------------------|
| HAINES, ROBERT              | ...( <i>Exhibition and Gold Medal</i> )... | St. Thomas's Hosp.  |
| EDWARDS, WILLIAM THOMAS     | .....                                      | University College. |
| PARSEY, WILLIAM HENRY       | .....                                      | King's College.     |
| MARSHALL, FREDERICK WILLIAM | .....                                      | University College. |

### *Materia Medica and Pharmaceutical Chemistry.*

|                             |                                      |                     |
|-----------------------------|--------------------------------------|---------------------|
| WEBB, HENRY MARCH           | ( <i>Exhibition and Gold Medal</i> ) | Guy's Hospital.     |
| EDWARDS, WILLIAM THOMAS     | ...( <i>Gold Medal</i> )...          | University College. |
| MARSHALL, FREDERICK WILLIAM | .....                                | University College. |
| HAINES, ROBERT              | .....                                | St. Thomas's Hosp.  |

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SECOND EXAMINATION.



## EXAMINERS.

---

### *Physiology and Comparative Anatomy.*

Professor T. RYMER JONES.

### *Surgery.*

JOHN BACOT, Esq.

Sir STEPHEN LOVE HAMMICK, Bart.

### *Medicine.*

ARCHIBALD BILLING, M.D.

ALEXANDER TWEEDIE, M.D., F.R.S.

### *Midwifery.*

EDWARD RIGBY, M.D.

### *Forensic Medicine.*

EDWARD RIGBY, M.D.

Professor DANIELL, F.R.S.

JONATHAN PEREIRA, M.D., F.R.S.

### *Structural and Physiological Botany.*

Rev. Professor HENSLOW.



UNIVERSITY MEDICAL SCHOLARS, AND  
MEDALLISTS.

*Physiology and Comparative Anatomy.*

1840. RICHARD QUAIN.—Scholarship and Gold Medal.  
JOHN PADDON.—Gold Medal.  
1841. JOHN PHILIPS POTTER.—Scholarship and Gold Medal.  
EDMUND ALEXANDER PARKES.—Gold Medal.  
1842. GEORGE JOHNSON.—Scholarship and Gold Medal.  
JOHN TRAVIS DUNN.—Gold Medal.

*Surgery.*

1840. JOHN CHARLES BUCKNILL.—Gold Medal.  
1841. JOHN PHILIPS POTTER.—Scholarship and Gold Medal.  
1842. JOHN WILSON CROKER PENNELL.—Gold Medal.

*Medicine.*

1840. THOMAS O'MEARA.—Scholarship and Gold Medal.  
JOHN DOUGLAS STRANG.—Gold Medal.  
1841. CHAS. BRODIE SEWELL.—Scholarship & Gold Medal.  
DAYRELL JOS. THACKWELL FRANCIS.—Gold Medal.  
1842. { ALFRED BARING GARROD.—Gold Medal.  
JOSEPH GRIFFITHS SWAYNE.—Gold Medal.

*Midwifery.*

1840. JOHN DOUGLAS STRANG.—Gold Medal.  
1841. WILLIAM WAY.—Gold Medal.  
1842. JOSEPH GRIFFITHS SWAYNE.—Gold Medal.

*Structural and Physiological Botany.*

1841. JOHN DEAKIN HEATON.—Gold Medal.

## SECOND EXAMINATION.

---

### PASS EXAMINATION.

---

*MONDAY, November 7.—MORNING, 10 to 1.*

---

#### PHYSIOLOGY AND COMPARATIVE ANATOMY.

*Examiner, Professor T. RYMER JONES.*

---

1. DESCRIBE the mechanical, chemical, and vital properties of Muscular Fibre.
2. What are the propelling agents employed in effecting the Circulation of the Blood during its passage through the venous system?
3. Describe the circulatory and respiratory organs of a CRUSTACEAN (*e. g. Lobster*), and of an INSECT; and point out the principal differences between them.
4. Describe the structure of the stomach of a RUMINANT QUADRUPED and the process of Rumination.
5. Describe the minute structure of the Liver of a Mammiferous animal, and the nature of the Biliary Secretion.
6. Describe the structure of the compound eye of an Insect.

MONDAY, November 7.—AFTERNOON, 3 to 6.

---

GENERAL PATHOLOGY, GENERAL THERAPEUTICS, AND HYGIENE.

CELSUS DE RE MEDICA.

Examiners, Dr. BILLING and Dr. TWEEDIE.

---

1. Describe the local phenomena of inflammation, or the changes which take place in an inflamed part. Give an outline of the essential nature of inflammation.

2. State the indications to be kept in view in the treatment of dropsy.

3. Describe the specific effects of the emanations arising from stagnant water on the human body; and mention the measures best calculated to counteract their pernicious influence.

4. Translate the following passage into English:—

At vomitus, ut in secundâ quoque valetudine sæpè necessarius biliosis est, sic etiam in his morbis, quos bilis concitavit. Ergo omnibus, qui ante febres horrore et tremore vexantur; omnibus, qui cholera laborant; omnibus etiam cum quâdam hilaritate insanientibus; et comitiali quoque morbo oppressis, necessarius est. Sed si acutus morbus est, sicut in cholera; si febris est, ut inter horrores, asperioribus medicamentis opus non est; sicut in dejectionibus quoque suprâ dictum est: satisque est, ea vomitus causâ sumi, quæ sanis quoque sumenda esse proposui. At ubi longi valentesque morbi sine febre sunt, ut comitialis, ut insania, veratro quoque albo utendum est. Id neque hieme neque æstate rectè datur; optimè, vere; tolerabiliter, autumnò. Quisquis daturus erit, id agere antè debet, ut accepturi corpus humidius sit. Illud scire oportet, omne ejusmodi medicamentum, quod potui datur, non semper agris prodesse, semper sanis nocere.—*Celsus*, lib. ii. cap. xiii.

TUESDAY, November 8.—MORNING, 10 to 1.

---

## SURGERY.

*Examiners*, Mr. BACOT and Sir STEPHEN HAMMICK.

---

1. How would you dress, place in position, and subsequently treat, an extensively incised wound of the Integuments and Muscles, on the anterior middle third of the Thigh? How does such treatment differ from that you would pursue in a lacerated, in a contused, and in a deep-punctured bayonet-wound of the same part? Give your reasons for your management of each respectively.

2. What are the symptoms and appearances in an acute inflammation of the Integuments of the lower extremity which would induce you to think that it would either terminate in resolution, in suppuration, in ulceration, or in mortification? State the foundation for such opinion.

3. Describe the various dislocations of the Elbow-joint, how they are detected, the appearances of the limb, and the mode of reduction.

4. In an Amputation of the Leg, supposing you had the choice of the whole space between the knee and ankle-joints, whereabouts would you begin your incision? Give your reasons for such preference: then detail the instruments and dressing you are likely to require, describing every step of your operation; the position of yourself and patient whether it be a right or a left limb; the stoppage of the circulation, whether by tourniquet or otherwise; the incisions; the mode of using a retractor; the sawing of the bones; the securing the arteries, whether by tenaculum or forceps; or if you should require the needle, how it is to be used; the restraining bloody oozing from the cut surface in debilitated constitutions; the dressing of the stump; position in bed; time of renewal of the dressings; the removal of ligatures; and subsequent management of the patient.

TUESDAY, November 8.—AFTERNOON, 3 to 6.

---

MEDICINE.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

---

1. Describe the symptoms, anatomical characters, and treatment of acute hydrocephalus.
2. Enumerate the principal varieties observed in the expectoration in pulmonary diseases, and the diagnostic inferences to be drawn from each.
3. Detail the principles of treatment in infantile convulsions.
4. State the characteristic appearances and varieties of Rupia.
5. Explain how Pncumo-thorax may arise. Give its physical signs. How is it to be treated?
6. Describe the symptoms and morbid appearances in dysentery. Give an outline of the treatment.



WEDNESDAY, November 9.—MORNING, 10 to 1.

---

MIDWIFERY.

*Examiner, Dr. RIGBY.*

---

1. Enumerate the changes in the female breast which are produced by pregnancy.
2. Enumerate the different varieties of extra-uterine pregnancy; their duration and probable mode of termination.
3. At what period of pregnancy is premature expulsion of the fœtus least dangerous, and at what period is it most so? Explain the reason why.
4. Enumerate the injurious effects which may result from hurrying the expulsion of the child.
5. Enumerate the indications for applying the forceps and for turning.
6. Define the operation of artificial premature labour, and describe the mode of inducing it as recommended by modern authors.
7. What are the injurious effects as regards the mother and child in allowing difficult labour, from contracted pelvis, to go on too long without assistance?
8. What is the diagnosis between prolapsus and polypus uteri?

WEDNESDAY, November 9.—AFTERNOON, 3 to 6.

---

## FORENSIC MEDICINE.

*Examiners*, Prof. DANIELL, Dr. PEREIRA, and Dr. RIGBY.

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1. What are the advantages of Marsh's process for the detection of Arsenic? and what are the sources of error to be guarded against?

2. How would you proceed to test for Corrosive Sublimate in the contents of a stomach, in a case of suspected poisoning?

3. What are the symptoms and most appropriate treatment of poisoning by Oxalic Acid? What is the average period of death after the ingestion of large doses of this poison? Describe the post-mortem appearances, and state how you would detect the presence of the poison in the contents of the stomach, after the appropriate antidote had been administered.

4. What are the symptoms and appropriate treatment of poisoning by *Aconitum Napellus*?

5. In the unimpregnated and in the pregnant state, what are the proofs of pregnancy having previously existed?

6. What are the appearances which indicate recent delivery, as shown during life and after death?

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MONDAY, November 14.—MORNING, at 10.

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## EXAMINATION IN ALL THE PRECEDING SUBJECTS.

By Vivâ Voce Interrogation.

*By all the Examiners.*

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## EXAMINATION FOR HONOURS.

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*TUESDAY, November 22.*

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## PHYSIOLOGY AND COMPARATIVE ANATOMY.

*Examiner, Professor T. RYMER JONES.*

---

*MORNING, 10 to 1.*

1. Describe the structure and functions of the Human Skin.
2. Describe the circulatory and respiratory systems of a CEPHALOPOD MOLLUSK.
3. Describe the structure of the Retina in a Mammiferous Animal.

*AFTERNOON, 3 to 6.*

1. State the differences in structure between the auditory apparatus of a FISH, a BIRD, and a MAMMAL.
2. Describe the shell of an ECHINUS and the mode of its growth.
3. Describe the most important phænomena that occur during the metamorphosis of the Tadpole of a BATRACHIAN REPTILE.

*WEDNESDAY, November 23.*

---

SURGERY.

*Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.*

---

*MORNING, 10 to 1.*

1. In a Compound Fracture of the Lower Jaw at its side, where there is considerable laceration and contusion of the surrounding soft parts, and where the external maxillary artery is torn, as it passes before the anterior edge of the masseter muscle, and where several of the teeth are loosened or displaced; describe at full length, not only your first treatment of the patient locally and generally, but lay down the principles on which you will subsequently proceed, according to the symptoms which in such a case are likely to arise.

2. What is the general age and constitution of a patient in whom that affection of the Hip-joint, commonly called a "Hip case," is most likely to arise; and with what complaints is it, at the beginning, often confounded? Divide the disease into its different stages, giving the appearances of the limb, the symptoms and mode of treatment of each stage respectively, with your hopes or fears of a successful or unsuccessful termination.

*AFTERNOON, 3 to 6.*

1. What would you do, if called immediately after the Brachial Artery had been unfortunately wounded in venesection at the bend of the arm? and what would you do if you had not been consulted till the injury had existed for several days; where unsuccessful attempts had been made by styptics and pressure to restrain the hæmorrhage which had repeatedly returned; where the arm was swollen, painful, and inflamed, with great symptomatic fever? Give the various ways by which such an accident has been combated, saying which you would select, with your reasons for such preference.

2. How would you treat a recent compound dislocation inwards of the Ankle-joint, where there is a protrusion of the lower head of the tibia? Detail such appearances as would justify you in attempting to save the limb. Give the position, dressings, and subsequent management of the case; and explain fully the extent of injury to the bones and surrounding parts of the joint which would induce you to propose immediate amputation of the leg, with your method of performing the operation, giving your reasons for every step of your proceedings.



*THURSDAY, November 24.*

---

MEDICINE.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

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*MORNING, 10 to 1.*

1. Mention the most striking facts and arguments tending to prove that certain acute and chronic diseases depend on morbid states of the blood.

2. Describe the more important structural changes in the orifices and valves of the Heart. Give the physical signs of each lesion.

3. Describe the anatomical characters of inflammation of serous membranes in the early as well as in the advanced stages.

*AFTERNOON, 3 to 6.*

1. Mention the modifications in the sound of respiration induced by disease, and the special pulmonary lesion indicated by each.

2. Describe the ordinary progress of Measles. State the sources of danger in the more severe forms. Give the indications of treatment.

3. Of what diseases is suppression of urine to be considered symptomatic? Describe its effects on the system; and give an outline of the treatment to be adopted.

FRIDAY, November 25.—MORNING, 10 to 1.

---

MIDWIFERY.

*Examiner, Dr. RIGBY.*

---

1. Enumerate briefly the symptoms, causes, and treatment of retroversion of the uterus.

2. Describe the treatment of hæmorrhage in premature expulsion.

3. What is the diagnosis between true and false labour pains?

4. In a case of dystocia from contracted pelvis, what are the circumstances which will justify your leaving it to the efforts of nature for a little while longer, and what are those which forbid delay?

5. Enumerate the rules and precautions to be observed in turning, as regards the fittest moment for performing the operation,—as regards the introduction of the hand, the diagnosis between the knees and elbows, the bringing down the feet and delivering the child.

6. In *Placenta prævia*, where the os uteri is *entirely* covered by the placenta, how would you introduce your hand for the purpose of turning? Give your reasons for the plan you recommend.

FRIDAY, November 25.—AFTERNOON, 3 to 6.

---

STRUCTURAL AND PHYSIOLOGICAL  
BOTANY.

*Examiner, Prof. HENSLOW.*

---

1. Define the terms Unguiculate; thyrsus; and distinguish between an inferior and superior ovary: referring for illustration to some plant in each case.
2. Describe the "Laticiferous tissue;" mention where it occurs and its uses.
3. Distinguish between a follicular and lomentaceous legumen; and give an example in which each occurs.
4. Explain the inflorescence of *Ficus*.
5. How is the fruit of *Lycopodiaceæ* constructed?
6. What are the general principles upon which the composition of leaves is explained?
7. What are the chief inorganic substances introduced into plants which appear to be essential to their health, though not necessary to their structure? How may their presence be considered serviceable?
8. How are wounds healed in the stem and branches of Exogenous trees? and what is the description of permanent injury to timber, effected by pruning?
9. What is the structure of the flower and fruit in *Epilobium*, *Bryonia*, *Atriplex*, *Narcissus*?
10. 11. 12. 13. Describe the structure of the several parts of these specimens.

## CANDIDATES.

~~~~~

The following is a list of the Candidates who passed the
SECOND EXAMINATION, and consequently received the De-
gree of BACHELOR OF MEDICINE.

The names are arranged alphabetically.

First Division.

	Medical Schools.
DUNN, JOHN TRAVIS	Guy's Hospital.
ELLISON, JAMES	St. Bartholomew's Hospital.
GARROD, ALFRED BARING	University College.
HUDSON, JOHN	Leeds and Univ. Coll.
INMAN, THOMAS	King's College.
JENNER, WILLIAM	University College.
JOHNSON, GEORGE	King's College.
LANGMORE, JOHN CHARLES	London Hospital.
LETHEBY, HENRY	Aldersgate.
PENNELL, JOHN WILSON CROKER	Guy's Hospital.
RAPER, WILLIAM AUGUSTUS	University College.
RUSSELL, JAMES	King's College.
SWAYNE, JOSEPH GRIFFITHS	Bristol, and Guy's Hospital.
WILLIAMS, WILLIAM HENRY	University College.

Second Division.

CRUTCH, GEORGE	St. George's Hospital.
DAVIS, JOHN HALL	University College.
HADWEN, ARTHUR	University College.
RANDALL, JOHN	Aldersgate, and St. Bartholomew's.
SPACKMAN, FREDERIC ROBERT	Middlesex Hospital.

EXAMINATION FOR HONOURS.

The names are arranged in the order of proficiency.

PHYSIOLOGY AND COMPARATIVE ANATOMY.

	Medical Schools.
JOHNSON, GEORGE (<i>Scholarship and Gold Medal</i>)..	King's College.
DUNN, JOHN TRAVIS (<i>Gold Medal</i>).....	Guy's Hospital.
PENNELL, JOHN WILSON CROKER.....	Guy's Hospital.
WILLIAMS, WILLIAM HENRY	University College.

SURGERY.

PENNELL, JOHN WILSON CROKER.. (<i>Gold Medal</i>)..	Guy's Hospital.
{ RUSSELL, JAMES.....	King's College.
{ SWAYNE, JOSEPH GRIFFITHS.....	Guy's Hospital.
DUNN, JOHN TRAVIS	Guy's Hospital.
INMAN, THOMAS	King's College.

MEDICINE.

{ GARROD, ALFRED BARING.... (<i>Gold Medal</i>)....	University College.
{ SWAYNE, JOSEPH GRIFFITHS .. (<i>Gold Medal</i>) ..	Guy's Hospital.
JOHNSON, GEORGE	King's College.
DUNN, JOHN TRAVIS	Guy's Hospital.
INMAN, THOMAS	King's College.
PENNELL, JOHN WILSON CROKER.....	Guy's Hospital.

MIDWIFERY.

SWAYNE, JOSEPH GRIFFITHS .. (<i>Gold Medal</i>) ..	Guy's Hospital.
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UNIVERSITY OF LONDON.

EXAMINATION

FOR THE DEGREE OF

DOCTOR OF MEDICINE

IN THE YEAR 1842.

LONDON:

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1842.

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EXAMINERS.

*Elements of Intellectual Philosophy, Logic, and
Moral Philosophy.*

REV. HENRY ALFORD, M.A.
THOMAS B. BURCHAM, Esq., M.A.

Surgery.

JOHN BACOT, Esq.
SIR STEPHEN LOVE HAMMICK, Bart.

Medicine.

ARCHIBALD BILLING, M.D.
ALEXANDER TWEEDIE, M.D., F.R.S.

Midwifery.

EDWARD RIGBY, M.D.

GOLD MEDALS, AND CERTIFICATES OF
SPECIAL PROFICIENCY.

GOLD MEDALS.

For a Commentary on a Case in Medicine.

1839. JOHN TAYLOR..... Medical Schools, &c.
University College.
1842. RICHARD QUAIN University College.

In Medicine.

1841. FREDERICK WM. MACKENZIE . University College.
1842. RICHARD QUAIN University College.

In Midwifery.

1841. JONATHAN MASON WADDY .. Guy's & St. Thomas's.

CERTIFICATES OF SPECIAL PROFICIENCY.

In Medicine.

1839. JOHN TAYLOR..... University College.
1841. WILLIAM MARTEN COOKE... Webb Street.
FREDERICK WM. MACKENZIE University College.
1842. WILLIAM ALLEN MILLER.... King's College.
RICHARD QUAIN..... University College.

PASS EXAMINATION.

MONDAY, November 28.—MORNING, 10 to 1.

ELEMENTS OF INTELLECTUAL PHILOSOPHY, LOGIC, AND MORAL PHILOSOPHY*.

Examiners, Mr. BURCHAM and Rev. H. ALFORD.

1. WHAT are ideas, according to Locke? What is the right method of treating of them, in an empirical treatise on human understanding? What has been Locke's fundamental error in this point? What has been its effect on his system, and his school?

2. Translate and explain: "1°. L'idée de corps est une idée contingente et relative, tandis que l'idée d'espace est une idée nécessaire et absolue: 2°. l'idée de corps implique l'idée de limite, et l'idée d'espace implique l'absence de toute limite: 3°. enfin, l'idée de corps est une représentation sensible, et l'idée d'espace est une conception pure et toute rationnelle."—p. 138.

Explain the logical and chronological interdepend-

* The following Works have been selected for the Examination in Logic, Moral, and Intellectual Philosophy, for the Degree of DOCTOR OF MEDICINE in the year 1843:

Logic.—Bacon's *Novum Organum*, Part I.

Philosophy of the Mind.—Cousin's Analysis of Locke's Essay (being the 3rd volume of his *Cours de Philosophie*).

Moral Philosophy.—Butler's *Analogy*, Part I. Stewart's *Outlines of Moral Philosophy*.

ency of these ideas: show how Locke has confounded these conditions, and why.

3. "Locke confond constamment l'ordre d'acquisition de nos connaissances avec leur ordre logique, et l'antécédent nécessaire d'une idée avec cette idée même."

Exemplify this in his account of the ideas of time, infinity, personal identity, and substance.

4. "L'utilité même de la peine repose sur la justice, loin que la justice repose sur l'utilité de la peine."

Expand this assertion; and state Locke's account of this matter.

5. "When the understanding is once stored with simple ideas, it has the power to repeat, compare, and unite them; and so can make at pleasure complex ideas."—*Locke*, Book II. c. 2.

Show that the natural process of the mind is the reverse of this.

6. Give the substance of Cousin's remarks on the third book of Locke's *Essay* (of words, or language in general).

7. State the three objections to Locke's theory of knowledge and judgment, and their grounds.

8. Give Locke's remarks on syllogistic reasoning, and Cousin's criticism on them.

9. What are the tendencies of Locke's theories on personal liberty, on the nature of the soul, and on the existence of God? What is Cousin's general judgment of the merits and faults of the *Essay* concerning Human Understanding? Who have been the most celebrated followers of Locke, and for what has each been distinguished?

10. What does Bacon propose to himself in his *Logic*? and what is his judgment of former writers? Does it appear to you to be just?

11. Give an account of, and subdivide, those false notions which Lord Bacon designates "Idols of the Tribe." Exemplify "Idols of the Market."

12. "Nor is it a less misfortune, that men, in their philosophies and contemplations, bestow their time in discovering and treating the ultimate principles, or last resorts of nature;

whereas all utility, and power of acting, lies in the midway.”
—*Aphor.* 66.

Give instances of this fault in philosophical theories.

13. Upon what grounds does Stewart contend that the desire of esteem is an original principle of our nature? What are the arguments adduced to show that it is resolvable into the association of ideas?

14. Give the substance of Clarke’s argument to prove the existence of a Deity. What metaphysical axioms are assumed therein? What is meant by the *à priori*, and what by the *à posteriori* argument?

15. Give a short account of Condillac’s theory. Is there any, and if so, what real difference, between his doctrine and that of Locke with respect to the origin of our ideas? How, according to Locke, do we get our ideas of cause and effect? Give any other solution of the question.

MONDAY, November 28.—AFTERNOON, 3 to 6.

COMMENTARY ON A CASE IN MEDICINE,
SURGERY, OR MIDWIFERY.
CELSUS *DE RE MEDICA*.

Examiners, Dr. BILLING and Dr. TWEEDIE.

CASE.

A man twenty-five years of age, who had previously enjoyed good health, suddenly complained of violent palpitations of the heart with difficulty of breathing and fever. He was bled several times, by which and other measures the palpitation ceased, and the dyspnœa was so much relieved that he voluntarily left the hospital. Some time afterwards he again applied for admission. He did not then complain of palpitation, and could lie in any position: auscultation detected only extreme frequency in the action of the heart, but no pulmonary lesion: the pulse was 140, regular, and of the ordinary strength: the skin was cool, the lower extremities slightly infiltrated: the abdomen soon began to enlarge, the face became œdematous, the breathing embarrassed, and the infiltration of the extremities and ascites increased. On percussing the thorax, the posterior part of the left side of the chest emitted a dull sound, and over this space the respiratory murmur was absent. From this period the strength rapidly declined, diarrhœa supervened, and he died a few days afterwards.

What was the nature of this disease? What morbid appearances would you expect to find? Detail the treatment you would have adopted.

CELSUS.

Alterius quoque visceris morbus, id est jecinoris, æquè modò longus, modò acutus esse consuevit: *ἥπατικὸν* Græci vocant. Dextrâ parte sub præcordiis vehemens dolor est; idemque ad latus dextrum et ad jugulum humerumque partis ejusdem pervenit: nonnunquàm manus quoque dextra torquetur: horror validus est. Ubi malè est, bilis evomitur; interdùm singultus propè strangulat. Et hæc quidem acuti morbi sunt: longioris verò, ubi suppuratio in jecinore est, dolorque modò finitur, modò intenditur, dextrâ parte præcordia dura sunt et tument: post cibum major spiritûs difficultas est; accedit maxillarum quædam resolutio. Ubi inveteravit malum, venter et crura pedesque intumescunt; pectus atque humeri, circaque jugulum utrumque extenuatur. Initio sanguinem mittere optimum est: tùm venter solvendus est, si non potest aliter, per nigrum veratrum. Imponenda extrinsecùs cataplasmata; primùm quæ reprimant, deindè calida quæ diducant; quibus rectè iris vel absinthium adjicitur: post hæc malagma. Dandæ verò sorbitiones sunt, omnesque cibi et calidi, et qui non multùm alunt, et ferè qui pulmonis quoque dolori conveniunt; præterque eos qui urinam movent, potionesque ad id efficaces. Utilia in hoc morbo sunt thymum, satureia, hyssopum, nepeta, amyllum, sesamum, lauri bacca, pini flos, herba sanguinalis, mentha, ex malo cotoneo medium, columbæ jecur recens et crudum. Ex quibus quædam per se esse, quædam adjicere vel sorbitioni vel potioni licet: sic tamen ut parcè assumantur. Neque alienum est, absinthium contritum ex melle et pipere, ejusque catapotium quotidie devorare. Abstinentum utique est ab omnibus frigidis: neque enim res ulla magis jecur lædit. Frictionibus utendum in extremis partibus: vitandus omnis labor, omnis vehementior motus: ne spiritus quidem diutiùs continendus est. Ira, trepidatio, pondus, ictus, cursus, inimica sunt. Perfusio corporis multâ prodest ex aquâ; si hiems est, calidâ; si æstas, tepidâ: item liberalis unctio, et in balneo sudor. Si verò jecur vomica laborat, eadem faciendæ sunt quæ in cæteris interioribus suppurationibus: quidam etiam contra id scalpello aperiunt, et ipsam vomicam adurunt. (Lib. IV. Cap. viii.)

TUESDAY, November 29.

MEDICINE.

Examiners, Dr. BILLING and Dr. 'TWEEDIE.

MORNING 10 to 1.

1. What conclusions are to be drawn, in the present state of pathological knowledge, from the presence of albumen in the urine?
2. Describe the anatomical characters, and physical signs of pneumonia. Give an outline of the treatment to be adopted in its several stages.
3. Detail the symptoms, anatomical characters, and treatment of peritonitis.
4. Mention the more remote affections incident to the process of dentition, and the treatment applicable to each.

AFTERNOON, 3 to 6.

1. What are the more frequent complications of whooping cough? Mention the symptoms by which they may be recognized. Sketch the treatment of the disease, including that adapted to the complicated forms.
2. Describe the symptoms and treatment of delirium tremens.
3. Give the symptoms, diagnosis and progress of inflammation of the cæcum.
4. Mention the different forms of gravel, and the treatment, remedial and dietetic, applicable to each.

FRIDAY, December 2, at 10 A.M.

EXAMINATION ON THE ANSWERS TO THE
PRINTED PAPERS, AND ON THE COMMEN-
TARIES.

By Vivâ Voce Interrogation.

Examiners, Dr. BILLING and Dr. TWEEDIE.

EXAMINATION FOR HONOURS.



EXAMINATION FOR HONOURS.

TUESDAY, December 6.

SURGERY.

Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.

MORNING, 10 to 1.

WHAT constitutes a Hernia? Describe an Inguinal, a Femoral, an Umbilical, a Ventral, a Pudendal, and a Congenital Rupture: give the anatomical structure and formation of the openings through which the above Herniæ protrude. What makes the difference between a reducible, an irreducible, and a strangulated rupture? Note the diseases with which they are sometimes unfortunately confounded, and how such mistakes are to be avoided. How do you know whether the contents of the hernial sac be omentum, intestine, or both? and would that knowledge make any difference in your treatment or prognostic? You will detail the management of each of the above-named Herniæ respectively, under their several conditions of reducible or otherwise; give at length the treatment in every stage likely to arise in the various Herniæ whilst in a state of strangulation, till they are reduced or you have decided on an operation; if the latter give your reasons, particularly remarking whether your decision has been formed by the length of time that the rupture has been strangulated, or from the violence of the symptoms; if the former, what length of time? if the latter, what are the peculiar symptoms on which you rest?

AFTERNOON, 3 to 6.

As you have detailed in the paper of this morning the treatment of the various Herniæ whilst in a state of strangulation, you are now desired to describe very fully the method of performing the operation for each of these ruptures respectively, with your management of the contents of the hernial sac, under the various conditions in which they may be found, giving your subsequent treatment from stage to stage according to the symptoms, which you think are likely to arise up to a successful or fatal termination; you may refer to any operations for Herniæ which you may have seen performed.

WEDNESDAY, December 7.

MEDICINE.

Examiners, Dr. BILLING and Dr. TWEEDIE.

MORNING, 10 to 1.

1. Describe the principal organic diseases of the stomach, including the anatomical characters and diagnostic symptoms of each.

2. Enumerate the varieties of Erysipelas. Describe the progress of erysipelas of the head. Sketch the general principles of treatment of erysipelas, mentioning the more important circumstances to be kept in view in determining the measures to be adopted in particular cases.

AFTERNOON, 3 to 6.

1. Mention the various ways in which strangulation of a portion of intestine may be produced. What symptoms would lead you to infer that this lesion existed?

2. What measures would you adopt in a sudden apoplectic seizure? State the circumstances that would induce you to entertain a favourable or an unfavourable opinion of the issue of the case; and should it terminate fatally, describe the morbid appearances you would expect to find.

THURSDAY, December 8.

MIDWIFERY.

Examiner, Dr. RIGBY.

MORNING, 10 to 1.

1. What are the rules which you would give a patient during the first half of her pregnancy for avoiding premature expulsion, who had already miscarried in two or three previous pregnancies?
2. Enumerate the species of Puerperal Convulsions, their symptoms and treatment.
3. Describe the conditions and forms under which Asphyxia neonatorum occurs, and the treatment.

AFTERNOON, 3 to 6.

1. What are the species of Menorrhagia, their causes and treatment?
2. Describe the modifications and varieties of Menstruation arising from peculiar habit, mode of life, climate, &c.
3. What are the symptoms of Prolapsus Uteri, and its effects upon the neighbouring parts?

CANDIDATES.

~~~~~

The following Candidates passed the Examinations, and have consequently been admitted to the Degree of DOCTOR OF MEDICINE.

### *First Division.*

|                              |                     |
|------------------------------|---------------------|
|                              | Medical Schools.    |
| *MILLER, WILLIAM ALLEN ..... | King's College.     |
| PALEY, WILLIAM .....         | London Hospital.    |
| †QUAIN, RICHARD .....        | University College. |
| UNWIN, DAVID .....           | University College. |

### *Second Division.*

PURVIS, PRIOR .....

St. Thomas's Hospital.

\* A Certificate of Special Proficiency in Medicine was awarded to Dr. Miller.

† A Certificate of Special Proficiency in Medicine and a Gold Medal for a Commentary on a Case in Medicine were awarded to Dr. Quain.

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## EXAMINATION FOR HONOURS.

### MEDICINE.

QUAIN, RICHARD ..... (*Gold Medal*).... University College.

RICHARD AND JOHN E. TAYLOR,  
*PRINTERS TO THE UNIVERSITY OF LONDON,*  
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EXAMINATION

FOR

M A T R I C U L A T I O N

IN THE YEAR 1843.

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1843.



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## EXAMINERS.



### *In Classics.*

Rev. JOSEPH H. JERRARD, D.C.L.  
T. B. BURCHAM, Esq. M.A.

### *In Mathematics and Natural Philosophy.*

Rev. Professor HEAVISIDE, M.A.  
GEORGE B. JERRARD, Esq., B.A.

### *In Chemistry.*

Professor DANIELL, F.R.S.

### *In Botany.*

Rev. Professor HENSLOW, M.A.

### *In Zoology.*

Professor T. RYMER JONES.

# PASS EXAMINATION.

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MONDAY, July 3.—MORNING, 10 to 1.

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## ARITHMETIC AND ALGEBRA.

*Examiner, Rev. Professor HEAVISIDE.*

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1. MULTIPLY 1756 by 304. Divide 43375 by 347. Explain the different steps of each operation.
2. Define a fraction. When is a vulgar fraction greater than unity? Find the value of the compound fraction  
 $\frac{1}{2}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$ .
3. Reduce the fractions  $\frac{1}{2}$ ,  $\frac{2}{3}$ ,  $\frac{3}{5}$ ,  $\frac{7}{8}$ ,  $\frac{9}{10}$ ,  $\frac{11}{12}$ ,  $\frac{13}{15}$ , to equivalent fractions having a common denominator. Explain the rule you employ. Divide  $\frac{121}{144}$  by  $\frac{11}{12}$ .
4. Add together  $\frac{5}{8}$  of £1000 16s. 8d.,  $\frac{3}{4}$  of £2400 12s. 4d.,  $\frac{5}{7}$  of £3724 14s. 7d. What fraction of half a yard is 3 inches?
5. Represent as vulgar fractions 1·25, ·0004. How does it affect the value of a decimal to annex ciphers (1) after the decimal places, (2) between the decimal places and the decimal point? Decimals may be multiplied and divided by 10, 100, 1000, &c., merely by shifting the decimal point; show this. Divide ·000121 by 1·1.
6. Extract the square roots of (1) 119025, (2) 1·21, (3) 12·1.

7. Find the simple interest on £2475 12s. 4d. at  $3\frac{1}{2}$  per cent. for five years.

8. Add  $\frac{a-b}{2}$  to  $\frac{a+b}{2}$ .

Multiply  $x^2 - 2ax + a^2$  by  $(x+a)$ .

Divide  $x^2 - 7x + 12$  by  $x - 3$ , and

$(x-y)$  by  $x^{\frac{1}{2}} - y^{\frac{1}{2}}$ .

9. Define proportion. If four quantities be proportional, the product of the extremes is equal to the product of the means. What well-known rule in arithmetic is founded on this property? If  $a : b :: c : d$ , prove  $a + b : a :: \overline{c + d} : c$ .

10. Solve the following equations:—

1.  $3x - 7 = 4x - 10$ .

2.  $\frac{x}{2} + \frac{x}{3} = 13 - \frac{x}{4}$ .

3.  $2x - 5 - \frac{x-3}{7} = x + 4$ .

4.  $\left. \begin{array}{l} 4x + 9y = 51 \\ 8x = 9 + 13y. \end{array} \right\}$

11. Two railroad trains start at the same time, one from London at the rate of 25 miles an hour, the other from Bristol at 30 miles an hour; the distance from London to Bristol is 120 miles; at what distance from Bristol will the trains meet?

MONDAY, July 3.—AFTERNOON, 3 to 6.

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ENGLISH HISTORY.

*Examiner, Rev. Dr. JERRARD.*

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1. What was Julius Cæsar's pretext for invading Britain? How were the natives regarded and treated by his successors? Do they appear to have made much progress in the Arts while subject to the power of the Romans? To what authors are we indebted for the knowledge which we possess of their manners, government and religion?

2. Under what circumstances did the Saxons first arrive in Britain? With what consequences to the original inhabitants were their conquests in this country attended? When were they converted to Christianity? What was the state of popular liberty among them towards the time of the Norman Conquest?

3. Give a short account of the Feudal system as it existed under the Anglo-Norman kings.

4. What were the most marked effects of the Crusades upon this country? What part was taken in them by the kings of England?

5. State briefly (with dates) the principal events which accelerated, and those which retarded, the progress of civil liberty in England, between the period of the granting of Magna Charta, and that of the Revolution in 1688; mentioning the chief provisions of the several Acts to which you refer.

6. What circumstances were favourable, and what unfavourable, to the spread and the establishment of the Reformed Religion in England?

7. What appear to have been the main causes of the early

subversion of the Commonwealth, and restoration of the Monarchy?

8. Give the names of the most remarkable men of genius who flourished in England from the commencement of the reign of Elizabeth to that of Charles II.; mentioning the departments of Literature, Science, or Art in which they severally excelled.

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TUESDAY, July 4.—MORNING, 10 to 1.

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GREEK CLASSIC AND HISTORY.

*Examiner*, Rev. Dr. JERRARD.

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Translate :

XENOPHON\*, HELLENICS.

(A.) Book I. Chap. 4. § 11.

Ἄλκιβιάδης δ' ἐκ τῆς Σάμου, ἔχων τὰ χρήματα, κατέπλευσεν ἐς Πάρον ναυσὶν εἴκοσιν. ἐκεῖθεν δ' ἀνήχθη εὐθὺς Γυθείου ἐπὶ κατασκοπῇ . . . ὅπως ἡ πόλις πρὸς αὐτὸν ἔχοι. Ἐπεὶ δὲ ἑώρα ἑαυτῷ εὖνουν οὖσαν, καὶ στρατηγὸν αὐτὸν ἡρημένους, καὶ ἰδίᾳ μεταπεμπομένους τοὺς ἐπιτηδεῖους, κατέπλευσεν ἐς τὸν Πειραιᾶ ἡμέρα, ἣ Πλυνήρια ἦγεν ἡ πόλις, τοῦ ἔδους κατακεκαλυμμένου τῆς Ἀθηναῖς· ὃ τινὲς οἰωνίζοντο ἀνεπιτήδειον εἶναι καὶ αὐτῷ καὶ τῇ πόλει. Ἀθηναίων γὰρ οὐδεὶς ἐν ταύτῃ τῇ ἡμέρᾳ οὐδενὸς σπουδαίου ἔργου τομήσαι ἂν ἄψασθαι. Καταπλέοντος δ'

\* Edit. Schneider.



αὐτοῦ, ὃ τε ἐκ τοῦ Πειραιῶς καὶ ὃ ἐκ τοῦ ἄστεος ὄχλος ἠθροίσθη πρὸς τὰς ναῦς, θαυμάζοντες, καὶ ἰδεῖν βουλόμενοι τὸν Ἄλκιβιάδην, λέγοντες οἱ μὲν, ὅτι ὡς κράτιστος εἴη τῶν πολιτῶν (καὶ μόνος ἀπελογήθη, ὡς οὐδὲν δικαίως φύγοι). ἐπιβουλευθεὶς δὲ ὑπὸ τῶν ἔλαττον ἐκείνου δυναμένων, μοχθηρότερόν τε λεγόντων, καὶ πρὸς τὸ αὐτῶν ἴδιον κέρδος πολιτευόντων· ἐκείνου αἰεὶ τό [τε] κοινὸν αὐξήσας, καὶ ἀπὸ τῶν αὐτοῦ, καὶ ἀπὸ τοῦ τῆς πόλεως δυνατοῦ. ἐθέλοντος δὲ τό τε κρίνεσθαι παραχρῆμα, τῆς αἰτίας ἄρτι γεγενημένης, ὡς ἠσεβηκότος ἐς τὰ μυστήρια, ὑπερβαλλόμενοι οἱ ἐχθροὶ τὰ δοκοῦντα δίκαια εἶναι, ἀπόντα αὐτὸν ἐστερησαν τῆς πατρίδος. ἐν ᾧ χρόνῳ, ὑπὸ ἀμηχανίας δουλεύων, ἠναγκάσθη μὲν θεραπεύειν τοὺς ἐχθίστους, κινδυνεύων αἰεὶ παρ' ἐκάστην ἡμέραν ἀπολέσθαι· τοὺς δὲ οἰκειοτάτους, πολίτας τε καὶ ξυγγενεῖς, καὶ τὴν πόλιν ἅπασαν ὀρώων ἐξαμαρτάνουσαν, οὐκ εἶχεν ὅπως ὠφελοῖν, φυγῇ ἀπειργόμενος.

(B.) Book I. Chap. 6. § 36.

Ταῦτα δὲ βουλομένους ποιεῖν, ἄνεμος καὶ χειμῶν αὐτοὺς διεκόλυσε, μέγας γενόμενος. τρόπαιον δὲ στήσαντες αὐτοῦ, ἠϋλίζοντο. Τῷ δ' Ἐτεονίκῳ ὁ ὑπηρετικὸς κέλῃς πάντα ἐξήγγειλε τὰ περὶ τὴν ναυμαχίαν. ὁ δὲ αὐτὸν πάλιν ἐξέπεμψεν, εἰπὼν τοῖς ἐνοῦσι, σιωπῇ ἐκπλεῖν, καὶ μηδενὶ διαλέγεσθαι, παραχρῆμα δὲ αὐθις πλεῖν ἐς τὸ ἑαυτῶν στρατόπεδον ἐστεφανωμένους καὶ βοῶντας, ὅτι Καλλικρατίδας νενίκηκε ναυμαχῶν, καὶ ὅτι αἱ τῶν Ἀθηναίων νῆες ἀπολώλασιν ἅπασαι. Καὶ οἱ μὲν ταῦτ' ἐποίησαν· αὐτὸς δ', ἐπειδὴ ἐκείνοι κατέπλεον, ἔθυε τὰ εὐαγγέλια, καὶ τοῖς στρατιώταις παρήγγειλε δειπνοποιεῖσθαι, καὶ τοῖς ἐμπόροις, τὰ χρήματα σιωπῇ ἐνθεμένους ἐς τὰ πλοῖα ἀποπλεῖν ἐς Χίον, (ἦν δὲ τὸ πνεῦμα οὐρίον) καὶ τὰς τριήρεις τὴν ταχίστην. αὐτὸς δὲ τὸ πεζὸν ἀπῆγεν ἐς τὴν Μήθυμναν, τὸ στρατόπεδον ἐμπρήσας.

(C.) Book I. Chap. 7. § 34.

Τί τούτων οὐχ ἰκανῶς καὶ καλῶς ἔπραξαν; Οὐκοῦν δίκαιον, τὰ μὲν πρὸς τοὺς πολεμίους μὴ καλῶς πραχθέντα, τοὺς πρὸς τούτους ταχθέντας ὑπέχειν λόγον· τοὺς δὲ πρὸς τὴν ἀναίρεσιν, μὴ ποιήσαντας, ἃ οἱ στρατηγοὶ ἐκέλευσαν, διότι οὐκ ἀνείλοντο, κρίνεσθαι. Τοσοῦτον δ' ἔχω εἰπεῖν ὑπὲρ ἀμφοτέρων, ὅτι ὁ χει-

μὼν διεκώλυσε μηδὲν πράξαι, ὧν οἱ στρατηγοὶ παρεκελεύσαντο. τούτων δὲ μάρτυρες οἱ σωθέντες ἀπὸ τοῦ αὐτομάτου, ὧν εἰς τῶν ἡμετέρων στρατηγῶν ἐπὶ καταδύσης νεὼς σωθεῖς, ὄν κελεύουσι τῇ αὐτῇ ψήφῳ κρίνεσθαι, καὶ αὐτὸν τότε δεόμενον ἀναιρήσεως, ἥπερ τοὺς οὐ πράξαντας τὰ προσταχθέντα. Μὴ τοίνυν, ὦ ἄνδρες Ἀθηναῖοι, ἀντὶ μὲν τῆς νίκης καὶ τῆς εὐτυχίας, ὅμοια ποιήσητε τοῖς ἡττημένοις τε καὶ ἀτυχοῦσιν· ἀντὶ δὲ τῶν ἐκ Θεοῦ ἀναγκαίων ἀγνωμονεῖν δόξητε, προδοσιῶν καταγρόντες ἀντὶ τῆς ἀδυναμίας, οὐχ ἱκανοὺς γενομένους διὰ τὸν χειμῶνα πράξαι τὰ προσταχθέντα· ἀλλὰ πολὺ δικαιότερον, στεφάνοις γεραίρειν τοὺς νικῶντας, ἢ θανάτῳ ζημιοῦν, πονηροῖς ἀνθρώποις πειθομένους.

1. Enumerate the extant works of Xenophon, mentioning the subjects on which they are respectively written. What is the general character of his style and merits as an historian? What was the nature of his philosophical opinions? What period of history is embraced by his Hellenics? Translate and comment upon the words with which that work commences, *Μετὰ δὲ ταῦτα, οὐ πολλαῖς ἡμέραις ὕστερον.*

2. Mention the origin, the date (B.C. and Olymp.) of the commencement and of the termination, the principal events and consequences of the Peloponnesian War. Describe the constitution of Athens, (in the time of Pericles) and that of Sparta.

3. Draw a map of Asia Minor, marking the boundaries of the provinces which lie along the sea-coast, and noting the situations of their principal towns. Give a sketch of the coasts of the Ægean Sea, and of the most remarkable of the islands in it, giving the modern as well as the ancient names, and illustrating, more particularly, the First Book of the Hellenics.

4. Explain any peculiarities of construction which occur in the extracts (A.) and (C.). What cases are used *absolutely* in Greek? Explain the nature and use of the Genitive Case and Optative Mood, showing how far in these points the Greek and Latin languages correspond with each other.

TUESDAY, July 4.—AFTERNOON, 3 to 6.

---

CHEMISTRY. NATURAL HISTORY.

---

CHEMISTRY.

*Examiner*, Professor DANIELL.

1. Account for the rise of water in a pump, and generally for the phænomena of *suction*.
2. What is the general distribution of heat in the atmosphere, and by what processes is it brought about?
3. What do you mean by a Chemical Element? Illustrate the meaning with reference to the atmosphere.
4. What are the principal distinctive characters of those bodies which are sometimes designated as supporters of combustion? Illustrate by examples.
5. State the principal laws of chemical combination, and illustrate them by examples.
6. What is the general composition of the products of Vegetation? How may their ultimate constitution be ascertained?

---

BOTANY.

*Examiner*, Rev. Prof. HENSLOW.

CHARACTERS OF THE PRINCIPAL NATURAL FAMILIES OF EUROPEAN PLANTS.

State the principal characters of the following Orders:—

1. Linaceæ.
2. Geraniaceæ.
3. Juncaceæ.

Compare the following Orders; showing by what characters they principally agree and disagree:—

4. Ranunculaceæ with Papaveraceæ.
5. Campanulaceæ with Lobeliaceæ.

Refer to their Natural Orders the plants possessing the following characters:—

6. *Flores* hermaphroditi, irregulares.

*Calyx* 5-partitus.

*Corolla* 5-petala, hypogyna.

*Stamina* 5, hypogyna, petalis alterna; filamentis subnullis; antheris adnatis, apice in appendicem membranaceam productis, duorum anticorum connectivis dorso in appendices intra calcar reconditas productis.

*Ovarium* uniloculare, placentis parietalibus tribus; ovulis plurimis, anatropis.

7. *Flores* hermaphroditi, regulares.

*Perigonium* corollinum superum, infundibuliforme, tubo elongato, limbo sexpartito.

*Stamina* 3, fauci perigonii inserta, filamentis filiformibus, antheris sagittatis basifixis.

*Ovarium* triloculare, ovulis plurimis in loculorum angulo centrali biseriatis, anatropis.

*Stylus* elongatus, stigmatibus tribus dilatatis, carnosus, cucullatis.

---

## ZOOLOGY.

*Examiner*, Prof. T. RYMER JONES.

1. What are the four grand divisions under which Cuvier has classified the animal creation, and the distinctive characters peculiar to each?

2. How have the RADIATA of Cuvier been subdivided by subsequent zoologists?



3. What are the chief anatomical differences between the classes into which the VERTEBRATA have been separated?
4. Briefly describe the general structure of a Conchiferous Mollusk.
5. How do the shell and spines of an *Echinus* grow?

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WEDNESDAY, July 5.—MORNING, 10 to 1.

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MATHEMATICS.

*Examiner, Mr. JERRARD.*

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1. What is meant by a straight line, and a right angle? Is it necessary to assume the proposition that all right angles are equal to one another?
2. In an isosceles triangle prove that the angles opposite the equal sides are equal.
3. Show how to bisect a given rectilineal angle.
4. The straight lines which join the extremities of two equal and parallel straight lines, towards the same parts, are also themselves equal and parallel.
5. If a parallelogram and a triangle be upon the same base and between the same parallels, the parallelogram is double the triangle.
6. Prove that the three interior angles of every triangle are equal to two right angles, and compare an interior angle of an equiangular pentagon with a right angle.
7. Upon a given straight line to describe a square.
8. In the figure belonging to Prop. 47, show that if the



lines parallel to the two sides of the triangle containing the right angle, and the line perpendicular to the side subtending the right angle be produced, they will meet in a point.

9. Solve the equations

$$(1.) \quad \frac{x+2}{11} - \frac{x-7}{4} = 1 + \frac{x-10}{2},$$

$$(2.) \quad \left. \begin{array}{l} 5x + 6y = 137 \\ 13x - 4y = 23 \end{array} \right\},$$

and find the sum of the series

$$a - \frac{a}{r} + \frac{a}{r^2} - \dots \text{ to } n \text{ terms.}$$

WEDNESDAY, July 5.—AFTERNOON, 3 to 6.

## NATURAL PHILOSOPHY.

*Examiners*, Mr. JERRARD and Rev. Prof. HEAVISIDE.

1. If two forces act simultaneously on a point, how is their resultant represented in magnitude and direction? How must the forces act so that the resultant shall have (1) its least, (2) its greatest value? What is that greatest value?

2. In the single moveable pulley when the strings are all parallel, find the force that will support a given weight. Give instances of systems of pulleys arranged so as to afford a mechanical advantage.

3. Define the centre of gravity of a body, or a system of bodies. Does such a point always exist in a material body?

4. State the second law of motion. When are two motions said to be compounded? Illustrate the second law of motion by referring to experiments.

5. A heavy body falls from rest *in vacuo*: state the relations between the space described, the velocity acquired, and the time of motion. Compare the spaces through which a heavy body will fall in 3" and 5" respectively.

6. Explain the equal diffusion of the pressure of fluids, and show how it varies.

7. Explain the use and construction—(1) of the Barometer, (2) of the Forcing Pump.

8. Describe the nature of Sound. When a gun is fired at a distance, why do we see the flash before we hear the report?

9. State the laws of reflexion and refraction of a ray of light.

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THURSDAY, July 6.—MORNING, 10 to 1.

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ROMAN CLASSIC AND HISTORY.

*Examiner*, Mr. BURCHAM.

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Translate into English:

LIVY\*.

A. Book XXXI. Chap. vii.

Consul in campo Martio comitiis habitis, priusquam centurias in suffragium mitteret, concione advocata, 'Ignorare,' inquit, 'videmini mihi, Quirites, non, utrum bellum an pacem habeatis, vos consuli: (neque enim liberum id vobis permittit Philippus, qui terra marique ingens bellum molitur) sed utrum in Macedoniam legiones transportetis, an hostem in

\* Edit. Ernesti.

Italiam accipiatis. Hoc quantum intersit, si nunquam ante alias, Punico certe proximo bello experti estis. Quis enim dubitat, quin, si Saguntinis obsessis fidemque nostram implorantibus inpigre tulissemus opem, sicut patres nostri Mamerthinis tulerant, totum in Hispaniam aversuri bellum fuerimus, quod cunctando cum summa clade nostra in Italiam accepimus? Ne illud quidem dubium est, quin hunc ipsum Philippum, pactum jam per legatos literasque cum Hannibale in Italiam trajicere, misso cum classe Lævino, qui ultro ei bellum inferret, in Macedonia continuerimus. et quod tunc fecimus, quum hostem Hannibalem in Italia haberemus, id nunc, pulso Italia Hannibale, devictis Karthaginiensibus, cunctamur facere? Patiamur expugnandis Athenis, sicut Sagunto expugnando Hannibalem passi sumus, segnitiem nostram experiri regem. Non quinto inde mense, quemadmodum ab Sagunto Hannibal, sed quinto inde die, quam ab Corintho solverit naves, in Italiam perveniet. Ne æquaveritis Hannibali Philippum, ne Karthaginiensibus Macedonas; Pyrrho certe æquabitis: Pyrrho dico, quantum vel vir viro, vel gens genti præstat! Minima accessio semper Epirus regno Macedoniae fuit, et hodie est. Peloponnesum totam in ditione Philippus habet, Argosque ipsos, non vetere fama magis, quam morte Pyrrhi nobilitatos.

Explain the historical allusions in the above passage.

#### B. Chap. xvii.

Abydeni primo, tormentis per muros dispositis, non terra modo adeuntes aditu arcebant, sed navium quoque stationem infestam hesti faciebant. postea, quum et muri pars strata ruinis, et ad interiorem raptim obpositum murum cuniculis jam perventum esset, legatos ad regem de conditionibus tradendæ urbis miserunt. Paciscebantur autem, ut Rhodiam quadriremem cum sociis navalibus, Attalique præsidium emitti liceret; atque ipsis urbe excedere cum singulis vestimentis. Quibus quum Philippus nihil pacati, nisi omnia permittentibus, respondisset; adeo renunciata hæc legatio ab indignatione simul ac desperatione iram accendit, ut, ad Saguntinam rabiem



versi, matronas omnes in templo Dianæ, pueros ingenuos, virginesque, infantes etiam cum suis nutricibus, in gymnasium includi juberent: aurum et argentum in forum deferri, vestem pretiosam in naves Rhodiam Cyzicenamque, quæ in portu erant, congeri: sacerdotes victimasque adduci, et altaria in medio poni. ibi delecti primum, qui, ubi cæsam aciem suorum, pro diruto muro pugnantem, vidissent, extemplo conjuges liberosque interficerent; aurum, argentum, vestemque, quæ in navibus esset, in mare dejicerent; tectis publicis privatisque, quamplurimis locis possent, ignes subjicerent; et, se facinus perpetraturos, præeuntibus execrabile carmen sacerdotibus, jurejurando adacti: tum militaris ætas jurare, neminem vivum, nisi victorem, acie excessurum. Hi, memores Deorum, adeo pertinaciter pugnaverunt, ut, quum nox prælium diremtura esset, rex prior, territus rabie eorum, pugna abstiterit. Principes, quibus atrocior pars facinoris delegata erat, quum paucos et confectos vulneribus ac lassitudine superesse prælio cernebant, luce prima sacerdotes cum infulis ad urbem dedendam Philippo mittunt.

Explain, “Transversis cuniculis hostium cuniculos exceperere.” What were the “testudines,” “vineæ,” “platei”?

#### C. Chap. xxvii.

Consul Sulpicius eo tempore inter Apolloniam ac Dyrrachium ad Apsum flumen habebat castra: quo arcessitum L. Apustium legatum cum parte copiarum ad depopulandos hostium fines mittit. Apustius, extrema Macedoniæ populatus, Corrago, et Gerrunio, et Orgesso castellis primo inpetu captis, ad Antipatriam in faucibus angustis sitam urbem, venit. ac primo evocatos principes ad conloquium, ut fidei Romanorum se committerent, perlicere est conatus: deinde, ubi, magnitudine ac mœnibus situque urbis freti, dicta adspernabantur, vi atque armis adortus, expugnavit; puberibusque interfectis, præda omni militibus concessa, diruit muros, atque urbem incendit. Hic metus Codrionem, satis validum et munitum oppidum, sine certamine ut dederetur Romanis, effecit. Præsidio ibi relicto, Ilion (nomen propter alteram in Asia urbem, quam oppidum, notius) vi capitur. Revertentem

legatum ad consulem cum satis magna præda, Athenagoras quidam regius præfectus in transitu fluminis a novissimo agmine adortus, postremos turbavit: ad quorum clamorem et trepidationem quum reiectus equo prope legatus signa convertisset, coniectisque in medium sarcinis aciem direxisset; non tulere inpetum Romanorum militum regii: multi ex iis occisi, plures capti. Legatus, incolumi exercitu reducto ad consulem, remittitur inde extemplo ad classem.

What was the ancient, and what is the modern name of Dyrrachium? Describe its geographical position.

1. Give a short account of Hannibal after the battle of Zama. Who were the parties engaged at the battle of Cynocephalæ, and what was its result? About what time were Macedonia and Greece reduced to Roman provinces?

2. "Cœptum bellum adversus Philippum decem ferme ante annis triennio prius depositum erat, quum Ætoli et belli et pacis fuissent causæ." What was the cause of the war here mentioned? How may the Ætolians be said to have been "et belli et pacis causæ"? Give the date of the commencement of the war.

3. "Ludi scenici—Jovis epulum ludorum causâ," c. 4. When and upon what occasion were dramatic entertainments first introduced at Rome? Why were they called "ludi scenici"? What were "versus Fescennini", and in what respects did the "saturæ" differ from them?

4. "Idibus Martiis, quo die tum consulatus inibatur," c. 6. Mention the different days on which the Consuls entered upon office, from its first establishment to B.C. 600. At what time were the consuls usually elected? What was enacted by the "Lex Calpurnia" in reference to them?



THURSDAY, July 6.—AFTERNOON, 3 to 6.

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GRAMMATICAL STRUCTURE OF THE  
ENGLISH LANGUAGE.

*Examiner*, Mr. BURCHAM.

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1. What purpose does the use of adjectives in a language serve? In what sense may surnames be considered adjectives? How are adjectives, which are not simple roots, formed in our language? Give instances of such as belong to the Saxon part of it, and of others which are of Greek or Latin origin. Why may adjectives be considered homogeneous with respect to verbs, and heterogeneous with respect to nouns?

2. Give reasons for believing that the definite article has arisen out of the demonstrative pronoun. What objections are there against considering the articles as distinct parts of speech?

3. What is meant by Strong Tenses and Strong Verbs as distinguished from Weak Tenses and Weak Verbs? To which portion of our language do the Strong Verbs belong? According to which of the two orders of verbs are derived words, and words imported from other languages, inflected?

4. How many true Tenses are there in our language? What is marked by the different syllables in *monebam*—*monebamus*; *amavisti*—*amavistis*? Point out the difference between the Greek, Latin and English languages in this respect. How do languages of greater or less antiquity differ in the expression of relations?

5. Dr. Johnson explains etymology—1. *The descent or derivation of a word from its original*; *the deduction or forma-*

tion from the radical word; the analysis of compounds into primitives. 2. The part of Grammar which delivers the inflections of Nouns and Verbs. Show in what respects the above definition is defective. Mention the different branches into which the family of Indo-Germanic languages may be divided. To which does the English Language belong?

6. Distinguish between *accent* and *emphasis*. What is the rule with respect to accent, as regards radical and inflexional syllables? For what reason is *accent* often confounded with *quantity*?

7. In masculine and feminine terms when should the masculine term be employed even where the female is signified? Point out the difference of meaning in the following words: veracity, truth, riches, richness, quantity, number, justice, justness, negligence, neglect, conscience, consciousness, conscientiousness, polity, policy. Give instances in which any of these terms are incorrectly used for the others.

EXAMINATION FOR HONOURS.



# EXAMINATION FOR HONOURS.

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## MATHEMATICS AND NATURAL PHILOSOPHY.

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TUESDAY, July 11.—MORNING, 10 to 1.

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### ARITHMETIC, ALGEBRA, GEOMETRY.

*Examiner*, Rev. Prof. HEAVISIDE.

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1. A RATE of £150 13s. 4d. is to be raised on a district assessed at £4230 16s., what portion of the rate must be paid by a person assessed at £30?

2. Express  $\frac{3}{7}$ ,  $\frac{4}{9}$ ,  $\frac{1\frac{1}{2}}{1\frac{1}{2}}$ ,  $\frac{1\frac{5}{4}}{2\frac{1}{4}}$ ,  $\frac{1\frac{9}{1}}{2\frac{3}{4}}$  by equivalent fractions having the least common denominator.

Express the difference between  $\frac{1}{19}$  of £1 and  $\frac{1}{20}$  of one guinea.

3. Find  $\sqrt{17}$  to four places of decimals, and express *accurately* the last remainder you obtain. Show that your result represents the square root of 17 nearly.



4. What do fractional and negative indices represent in Algebra? Express  $a^{-3} b^2 c^{-4}$  in a fractional form,—

(1.) with a numerator unity.

(2.) with a numerator  $c^4$ .

Find the values of  $2^{-8}$ ,  $(81)^{-\frac{1}{4}}$ .

5. Express the product  $(x+a)(x+b)(x+c)(x+d)$  by a result arranged according to powers of  $x$ . Hence obtain equivalent expressions for  $(x+a)^4$  and  $(x-a)^4$ .

6. Find the number of combinations of  $(n)$  different things taken  $(r)$  and  $(r)$  at a time.

If  $n=20$ , show that the number of combinations taken six at a time is equal to the number taken fourteen at a time.

7. Find the Arithmetic, Geometric, and Harmonic means between  $(a)$  and  $(b)$ . Show that these means are in continued proportion.

8. Solve the following equations:—

$$(1.) \quad \frac{10}{x} - \frac{14 - 2x}{x^2} = \frac{22}{9}$$

$$(2.) \quad \left. \begin{array}{l} x - y = 4 \\ xy = 165 \end{array} \right\}$$

$$(3.) \quad x^3 - a^3 = 0.$$

9. The opposite angles of any quadrilateral figure inscribed in a circle are equal to two right angles.

10. Inscribe a regular equilateral and equiangular pentagon in a given circle.

11. Show how to describe a rectilineal figure, similar to one and equal to another rectilineal figure.

TUESDAY, July 11.—AFTERNOON, 3 to 6.

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PLANE AND SPHERICAL TRIGONOMETRY—  
CONIC SECTIONS.

*Examiner, Mr. JERRARD.*

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1. Define the sine and cosine of an angle. Explain the meaning of the signs + and – when applied to lines, and trace the change of the tangent's sign through the four quadrants.

2. Prove that

$$\sin (A - B) = \sin A \cos B - \cos A \sin B.$$

Find  $\sin 18^\circ$ ,  $\cos 18^\circ$ ,  $\sin 15^\circ$ ,  $\cos 15^\circ$ , and thence deduce  $\sin 3^\circ$ .

3. In any plane triangle given two sides with their included angle, to find the other two angles and the third side.

4. In a spherical triangle the sines of the angles are as the sines of the opposite sides.

5. Investigate the expression for the cosine of an angle of a spherical triangle,

$$\cos C = \frac{\cos c - \cos a \cos b}{\sin a \sin b};$$

also show how the preceding proposition may be derived from it.

6. What is meant by the equation to a line? Find the equation to a straight line referred to rectangular axes. Discuss the meaning of the constants which enter into it; and draw the straight line of which the equation is

$$3y + 2x = 1.$$

7. Find the equation to the normal at any point of the

parabola, and show that the subnormal is equal to half the latus rectum.

8. In the ellipse the sum of the squares of any two semi-conjugate diameters is equal to the sum of the squares of the semi-axes.

9. Find the polar equation to the hyperbola, the centre being the pole.

10. If any chord of a hyperbola be produced to meet the asymptotes, the parts of it intercepted between the curve and the asymptotes will be equal.

WEDNESDAY, July 12.—MORNING, 10 to 1.

## STATICS AND DYNAMICS.

*Examiner*, Rev. Prof. HEAVISIDE.

1. A horizontal prism or cylinder of uniform density will produce the same effect by its weight as if it were collected at its middle point.

2. A cord  $P A Q$  passes round a point  $A$ , and is drawn in different directions by two forces  $P$  and  $Q$ ; find the pressure on the point  $A$ .

*Example.*  $P = 30\text{lbs}$ ,  $Q = 40\text{lbs}$ ,  $P A Q$  a right angle.

3. What is the *centre* of a system of parallel forces? Find the resultant and centre of any number of parallel forces acting on a rigid body. Is there a *centre* in every such system?

4. Find the position in which a common balance loaded

with unequal weights will rest. What are the requisites of a good balance?

5. When a body is placed on a horizontal plane, it will stand or fall, according as the vertical line drawn from its centre of gravity falls within or without the base.

6. How is velocity estimated (1) when it is uniform, (2) when it is variable? What is uniform force? how is it measured?

If ( $f$ ) be a uniform force urging a body from rest through a space ( $s$ ) in a time ( $t$ ), prove  $s = \frac{1}{2}ft^2$ .

7. Find the horizontal range and time of flight of a projectile at the earth's surface, neglecting the atmospheric resistance.

A body is projected at an angle of  $45^\circ$  with a velocity of 1600 feet in a second, find its height above the horizontal plane passing through the point of projection after  $3''$ .

8. A heavy body P draws another Q over a fixed pulley; show that the accelerating force is as  $\frac{P - Q}{P + Q}$ .

If P be 8oz. and Q 6oz., find the space described by each from rest in  $3''$ .

9. When is the impact of two bodies said to be *direct*? when are bodies said to be *elastic*?

A body ( $m$ ) moving with a velocity ( $v$ ) *meets* another body ( $m^1$ ) moving with a velocity ( $v^1$ ) in direct impact.

Find the velocities after impact, (1) when the bodies are inelastic, (2) when the modulus of elasticity =  $e$ .



WEDNESDAY, July 12.—AFTERNOON, 3 to 6.

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## HYDROSTATICS AND OPTICS.

*Examiner, Mr. JERRARD.*

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1. Find the pressure on a plane surface immersed in a fluid.
2. What is meant by an equilibrium of stability, of indifference, and of instability? Show that the positions of stable and unstable equilibrium in a floating body recur alternately.
3. Show how the specific gravity of bodies may be ascertained by means of Nicholson's hydrometer.
4. The elastic force of air at a given temperature varies inversely as the space it occupies.
5. Explain the construction of the low-pressure steam-engine.
6. Give some account of the two principal theories which have been formed on the nature and propagation of light. State the velocity of light, and the manner in which it was first discovered.
7. If  $\delta$  and  $\delta'$  be the distances of the foci of incident and reflected rays from the surface of a spherical reflector the radius of which is  $r$ , show that

$$\frac{1}{\delta} + \frac{1}{\delta'} = \frac{2}{r},$$

the direction of incidence being nearly perpendicular to the surface.

8. When a ray of light passes nearly perpendicularly through a thin prism the total deviation is constant, and bears an invariable ratio to the angle of the prism.

9. Describe the Newtonian telescope, and show how to determine its magnifying power.



THURSDAY, July 13.—MORNING, 10 to 1.

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GENERAL QUESTIONS.

*Examiner*, Rev. Prof. HEAVISIDE.

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1. If twelve men working ten hours a day can dig a trench half a mile long, two yards wide, and three yards deep in fifteen days, how long will it take thirty men working twelve hours a day to dig a trench one mile long, three yards deep and four yards wide?

2. Divide 1.44 by .000012, and prove the rule for the division of decimals when the number of decimal places in the dividend is less than the number in the divisor.

3. Find the amount of £165 10s. in four years at 5 per cent compound interest, the interest being payable yearly.

4. Find a point within a triangle equidistant from each of its angles. Is this always possible?

5. A B C D E is a regular equilateral and equiangular pentagon, join A C, A D, C E. Prove

(1) C E is parallel to A B,

(2) the angle A is trisected.

6. Expand  $\{a^2 - x^2\}^{-2}$  to six terms by the Binomial Theorem; write down the 15<sup>th</sup> and the ( $p$ )<sup>th</sup> terms respectively.

7. Find all the positive and integral values of ( $x$ ) and ( $y$ ) that satisfy the equations  $13x + 19y = 2000$ .

8. Where must the fulcrum of a uniform lever twelve inches long be placed so that 50lbs. at one end shall balance 70lbs. at the other? Solve this—

(1) when the lever is without weight,

(2) when it weighs one pound.

9.  $P \cdot P$ 's velocity =  $W \cdot W$ 's velocity. Prove this pro-

position when it holds good on that system of pulleys where the same string passes round all the pulleys.

10. A body at the earth's surface is projected perpendicularly upwards with a velocity of 64 feet in a second; at what time will it ascend through 48 feet\*?

Explain also the meaning of the double answer.

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THURSDAY, July 13.—AFTERNOON, 3 to 6.

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GENERAL QUESTIONS.

*Examiner, Mr. JERRARD.*

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1. Show by means of their equations that the perpendiculars from the three angles of any plane triangle on the opposite sides meet in a point.

2. Find the equation to the ellipse referred to the system of oblique axes formed by any pair of conjugate diameters.

3. Investigate an expression for the area of any quadrilateral, and show how to derive from it the well-known expression for a quadrilateral inscribed in a circle.

4. State Napier's rule of the *Circular Parts*; and apply it to solve the triangle of which the hypotenuse and a side are given.

5. Describe the double-barrelled air-pump, and find the density of the air in the receiver after any number of turns of the wheel.

\* Take the measure of the force of gravity as 32 feet.

6. Explain the Hydraulic Ram.

7. Each ray of solar light consists of an infinite number of rays of simple light, differing from each other in colour and refrangibility.

8. Explain the formation of the rainbow. Why is the *tertiary* bow seldom visible?

## CHEMISTRY.

*Examiner, Professor DANIELL.*

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*FRIDAY, July 14.—MORNING, 10 to 1.*

1. By what force does a salt become dissolved in water? By what force is its solution opposed and limited? In what proportions may the solution take place? and how may its crystallization be effected?

2. In taking the specific gravity of a gas, why is it necessary to examine the barometer and thermometer?

3. What is the correct volume of 98 cubic inches of a gas observed when the height of the barometer is 29.64 inches? What is the correct volume of 98 cubic inches of a gas observed when the thermometer indicates a temperature of 70° Fahr.?

4. Explain the doctrine of latent heat with reference to water in its three physical states.

5. What is the general constitution of a salt? In what particulars do the salts of the hydro-acids differ from and resemble the salts of the oxy-acids?

6. Describe by symbols the changes which occur in the formation of protoxide of nitrogen from nitrate of ammonia.

## NATURAL HISTORY.

FRIDAY, July 14.—AFTERNOON, 3 to 6.

### BOTANY.

*Examiner*, Rev. Prof. HENSLOW.

State the principal characters of the following Orders :

1. Celastraceæ.
2. Tiliaceæ.
3. Thymelaceæ.
4. Iridaceæ.
5. Hydrocharaceæ.

Point out the chief resemblances and differences between the following Orders :—

6. Convolvulaceæ and Cuscutaceæ.
7. Orobanchaceæ and Scrophulariaceæ.
8. Melanthaceæ and Liliaceæ.

Refer to their Natural Orders, plants possessing the following characters :

9. *Flores* hermaphroditi, regulares.  
*Calyx* pentasepalus, persistens ; sepalis imbricatis.  
*Corolla* pentapetala, hypogyna ; petalis æstivatione imbricato-convolutis.  
*Stamina* plurima, polyadelphia.  
*Ovarium* sessile, e marginibus carpidorum introflexis quinquiloculare : ovulis plurimis, anatropis.
10. *Flores* hermaphroditi, regulares.  
*Calyx* pentaphyllus, intus coloratus ; foliolis liberis,



deciduis, imo toro urceolari et ovario adnato insertis.

*Corolla* petalis plurimis liberis, toro extus pluriseriatim insertis, superioribus sensim minoribus.

*Stamina* plurima, libera, toro multiseriatim inserta.

*Ovarium* multiloculare; ovulis plurimis, anatropis: dissepimentorum parietibus insertis.

11. *Flores* hermaphroditi, regulares.

*Perigonium* hexaphyllum, regulare; foliolis tribus interioribus petaloideis caducis, exterioribus persistentibus.

*Stamina* 6, hypogyna.

*Ovaria* 6 vel plurima, unilocularia, indehiscentia, uniovulata.

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## ZOOLOGY.

*Examiner*, Prof. T. RYMER JONES.

1. Describe the construction of an Ascidian Mollusk, more especially as relates to its respiration, circulation and mode of procuring food.

2. Narrate succinctly the progress of the development of the Chick *in ovo*.

3. Describe the minute structure and mode of growth of the compound grinding tooth of a herbivorous quadruped.

4. What changes take place in the constitution of the respiratory and circulatory organs of the Tadpole during its conversion into the perfect Batrachian?

CLASSICS.

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TUESDAY, July 18.—MORNING, 10 to 1.

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ENGLISH PROSE COMPOSITION.

*Examiner*, Rev. Dr. JERRARD.

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SUBJECT.

The character of Socrates. His doctrine and manner of teaching. The conduct of his countrymen towards him.

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TUESDAY, July 18.—AFTERNOON, 3 to 6.

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LATIN.

*Examiner*, Mr. BURCHAM.

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Translate into Latin Prose :

Appius Claudius, the famous censor, the greatest of his countrymen in the works of peace, and no mean soldier in time of need, was now in the thirtieth year after his censor-

ship, in extreme old age, and had been for many years blind. But his active mind triumphed over age and infirmity; and although he no longer took part in public business, yet he was ready in his own house to give answers to those who consulted him on points of law, and his name was fresh in all men's minds, though his person was not seen in the forum. The old man heard that the senate was listening to the proposals of Cineas, and was likely to accept the king's terms of peace. He immediately desired to be carried to the senate-house, and was borne in a litter by his slaves through the forum. When it was known that Appius Claudius was coming, his sons and sons-in-law went out to the steps of the senate-house to receive him, and he was by them led in to his place. The whole senate kept the deepest silence as the old man arose to speak.

Re-translate into Latin Prose :

A person far advanced in years, whose appearance denoted severe distress, threw himself into the forum; his garb was squalid, and the figure of his person still more shocking, pale and emaciated to the last degree; besides, a long beard and hair had given his countenance a savage appearance: wretched as was the plight in which he appeared, he was known notwithstanding; several declared, that he had been centurion in the army, and filled with compassion for him, mentioned publicly many other distinctions, which he had obtained in the service; he himself exhibited scars on his breast, as testimonies of his honourable behaviour in several actions. To those who inquired the cause of that wretched condition, both of his person and apparel, (a crowd meantime having assembled round him, which resembled, in some degree, an assembly of the people,) he answered, that, "while he served in the army during the Sabine war, having not only lost the produce of his farm by the depredations of the enemy, but his house being burnt, all his goods plundered, his cattle driven off, and a tax being imposed at a time so distressing to him, he was obliged to run in debt: that this debt, aggravated by usury, had consumed, first, his farm, which he had inherited from

his father and grandfather; then, the remainder of his substance; and, lastly, like a pestilence, had reached his person; that he had been dragged by a creditor, not into servitude, but into a house of correction, or rather a place of execution." He then showed his back disfigured with the marks of fresh stripes: on this sight, after such a relation, a great uproar arose; and the tumult was no longer confined to the forum, but spread through every part of the city: those who were then in confinement, and those who had been released from it, forced their way into the public street, and implored the protection of their fellow-citizens: there was no spot which did not afford a voluntary associate to add to the insurrection; from all quarters they ran in bodies, through every street, with great clamour, into the forum.

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WEDNESDAY, July 19.—MORNING, 10 to 1.

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GREEK.

*Examiner*, Rev. Dr. JERRARD.

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Translate :

(A.) HERODOTUS\*, Book II. p. 430.

Μετὰ δὲ τούτων, βασιλεύσαι τὸν ἱέρα τοῦ Ἡφαίστου, τῷ οὐνομα εἶναι Σεθῶν· τὸν ἐν ἀλογίησι ἔχειν παραχρησάμενον τῶν μαχίμων Αἰγυπτίων, ὡς οὐδὲν δεησόμενον αὐτῶν· ἄλλα τε δὴ ἄτιμα ποιεῦντα ἐς αὐτούς, καὶ σφέας ἀπελέσθαι τὰς ἀρούρας, τοῖσι ἐπὶ τῶν προτέρων βασιλῆων δεδόσθαι ἐξαιρέτους ἐκάστῳ

\* Edit. Schweighaeuser.



δυώδεκα ἀρούρας. μετὰ δὲ, ἐπ' Αἴγυπτον ἐλαύνειν στρατὸν μέγαν Σαναχάριβον βασιλέα Ἀραβίων τε καὶ Ἀσσυρίων. οὐκων δὴ ἐθέλειν τοὺς μαχίμους τῶν Αἰγυπτίων βοηθέειν· τὸν δὲ ἱρέα ἐς ἀπορίην ἀπειλημένον, ἐσελθόντα ἐς τὸ μέγαρον, πρὸς τῷγαλμα ἀποδύρεσθαι οἷα κινδυνεύει παθέειν. ὀλοφυρόμενον δ' ἄρα μιν ἐπελθεῖν ὕπνον, καὶ οἱ δόξαι ἐν τῇ ὄψι, ἐπιστάντα τὸν θεὸν θαρσύνειν, ὡς οὐδὲν πείσεται ἄχαρι ἀντιάζων τὸν Ἀραβίων στρατὸν· αὐτὸς γὰρ οἱ πέμψειν τιμωρούς.

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ἘΣ ΜΕΝ τοσόνδε τοῦ λόγου Αἰγύπτιοί τε καὶ οἱ ἱρέες ἔλεγον, ἀποδεικνύντες, ἀπὸ τοῦ πρώτου βασιλέως, ἐς τοῦ Ἡφαίστου τὸν ἱρέα τοῦτον τὸν τελευταῖον βασιλεύσαντα, μίην τε καὶ τεσσεράκοντα καὶ τριηκοσίας ἀνθρώπων γενεὰς γενομένας, καὶ ἐν ταύτησι ἀρχιρέας καὶ βασιλέας ἑκατέρους τοσοῦτους γενομένους. καὶ τοι τριηκόσiai μὲν ἀνδρῶν γενεαὶ δυνάεται μύρια ἕτεα· γενεαὶ γὰρ τρεῖς ἀνδρῶν, ἑκατὸν ἕτεά ἐστι. μιῆς δὲ καὶ τεσσεράκοντα ἔτι τῶν ἐπιλοίπων γενεῶν, αἱ ἐπήσαν τῆσι τριηκοσίησι, ἔστι τεσσεράκοντα καὶ τριηκόσια καὶ χίλια ἕτεα. οὕτω ἐν μυρίοισι τε ἕτεσι καὶ χιλίοισι, καὶ πρὸς, τριηκοσίοισι τε καὶ τεσσεράκοντα, ἔλεγον θεὸν ἀνθρωποειδέα οὐδένα γενέσθαι· οὐ μὲν τοι οὐδὲ πρότερον, οὐδὲ ὕστερον ἐν τοῖσι ὑπολοίποισι Αἰγύπτου βασιλεύσι γενομένοισι, ἔλεγον τοιοῦτον οὐδέν. Ἐν τοίνυν τούτῳ τῷ χρόνῳ τετράκις ἔλεγον ἐξ ἡθέων τὸν ἥλιον ἀνατεῖλαι· ἔνθα τε νῦν καταδύεται, ἐνθεῦτεν δις ἐπαντεῖλαι· καὶ ἔνθεν νῦν ἀνατέλλει, ἐνθαῦτα δις καταδύναι.

(B.) THUCYDIDES†, Book I. p. 5.

· Δοκεῖ δέ μοι, οὐδὲ τοῦνομα τοῦτο ξύμπασά πω εἶχεν, ἀλλὰ τὰ μὲν πρὸ Ἑλληνος τοῦ Δευκαλίωνος καὶ πάνυ οὐδὲ εἶναι ἢ ἐπὶ κλησις αὕτη, κατὰ ἔθνη δὲ ἄλλα τε καὶ τὸ Πελασγικὸν ἐπὶ πλεῖστον ἀφ' ἑαυτῶν τὴν ἐπωνυμίαν παρέχεσθαι, Ἑλληνος δὲ καὶ τῶν παιδῶν αὐτοῦ ἐν τῇ Φθιώτιδι ἰσχυσάντων, καὶ ἐπαγομένων αὐτοὺς ἐπ' ὠφελείᾳ ἐς τὰς ἄλλας πόλεις, καθ' ἑκάστους μὲν ἤδη τῇ ὁμιλίᾳ μᾶλλον καλεῖσθαι Ἑλληνας, οὐ μέντοι πολλοῦ γε χρόνου ἡδύνατο καὶ ἅπασιν ἐκνικῆσαι. τεκμηριοῦ δὲ μάλιστα Ὅμηρος· πολλῶ γὰρ ὕστερον ἔτι καὶ τῶν Τρωϊκῶν

† Edit. Arnold.



γενόμενος, οὐδαμοῦ τοὺς ξύμπαντας ὠνόμασεν, οὐδ' ἄλλους ἢ τοὺς μετ' Ἀχιλλέως ἐκ τῆς Φθιώτιδος, οἵπερ καὶ πρῶτοι Ἑλληγες ἦσαν, Δαναοὺς δὲ ἐν τοῖς ἔπεσι καὶ Ἀργείους καὶ Ἀχαιοὺς ἀνακαλεῖ. οὐ μὴν οὐδὲ βαρβάρους εἶρηκε, διὰ τὸ μηδὲ Ἑλληνάς πω, ὡς ἐμοὶ δοκεῖ, ἀντίπαλον ἐς ἐν ὄνομα ἀποκεκρίσθαι. οἱ δ' οὖν ὡς ἕκαστοι Ἑλληγες κατὰ πόλεις τε, ὅσοι ἀλλήλων ξυνέσαν, καὶ ξύμπαντες ὕστερον κληθέντες, οὐδὲν πρὸ τῶν Τρωϊκῶν δι' ἀσθένειαν καὶ ἀμιξίαν ἀλλήλων ἀθρόοι ἔπραξαν. ἀλλὰ καὶ ταύτην τὴν στρατείαν θαλάσση ἤδη πλειῶ χρώμενοι ξυνήλθον.

## (C.) PLATO\*, CRITON, p. 393.

ΣΩ. Οὐκοῦν ἐκ τῶν ὁμολογουμένων τοῦτο σκεπτέον, πότερον δίκαιον ἐμὲ ἐνθένδε πειρᾶσθαι ἐξιέναι μὴ ἀφιέντων Ἀθηναίων ἢ οὐ δίκαιον· καὶ ἐὰν μὲν φαίνεται δίκαιον, πειρώμεθα, εἰ δὲ μή, ἐώμεν. ἄς δὲ σὺ λέγεις τὰς σκέψεις περὶ τε χρημάτων ἀναλώσεως καὶ δόξης καὶ παίδων τροφῆς, μὴ ὡς ἀληθῶς ταῦτα, ὧ Κρίτων, σκέμματα ἢ τῶν ῥαδίως ἀποκτινύντων καὶ ἀναβιωσκομένων γ' ἄν, εἰ οἰοί τε ἦσαν, οὐδενὶ ξὺν νῶ, τούτων τῶν πολλῶν. ἡμῖν δ', ἐπειδὴ ὁ λόγος οὕτως αἰρεῖ, μὴ οὐδὲν ἄλλο σκεπτέον ἢ ἢ ὅ περ νῦν δὴ ἐλέγομεν, πότερον δίκαια πράξομεν καὶ χρήματα τελούντες τούτοις τοῖς ἐμὲ ἐνθένδε ἐξάξουσιν καὶ χάριτας, καὶ αὐτοὶ ἐξάγοντές τε καὶ ἐξαγόμενοι, ἢ τῇ ἀληθείᾳ ἀδικήσομεν ταῦτα πάντα ποιούντες· κὰν φαινόμεθα ἄδικα αὐτὰ ἐργαζόμενοι, μὴ οὐ δέη ὑπολογίζεσθαι οὐτ' εἰ ἀποθνήσκειν δεῖ παραμένοντας καὶ ἡσυχίαν ἄγοντας, οὔτε ἄλλο ὅτιοῦν πᾶσχειν πρὸ τοῦ ἀδικεῖν.

## (D.) DEMOSTHENES†, OLYNTHIAC I. p. 15.

Τί οὖν, τις ἂν εἴποι, ταῦτα λέγεις ἡμῖν νῦν; ἵνα γινώτε ὧ ἄνδρες Ἀθηναῖοι καὶ αἰσθησθε ἀμφοτέρα, καὶ τὸ προῖεσθαι καθ' ἕκαστον αἰεί τι τῶν πραγμάτων ὡς ἀλυσιτελές, καὶ τὴν φιλοπραγμοσύνην ἢ χρῆται καὶ συζῆ Φίλιππος, ὑφ' ἧς οὐκ ἔστιν ὅπως ἀγαπήσας τοῖς πεπραγμένοις ἡσυχίαν σχήσει. εἰ δ' ὁ μὲν ὡς αἰεί τι μείζον τῶν ὑπαρχόντων δεῖ πράττειν ἐγνωκῶς

\* Edit. Stallbaum.

† Edit. Bekker.

ἔσται, ὑμεῖς δὲ ὡς οὐδενὸς ἀντιληπτέον ἐρρώμένως τῶν πραγμάτων, σκοπεῖσθε εἰς τί ποτ' ἐλπίς ταῦτα τελευτήσαι. πρὸς θεῶν, τίς οὕτως εὐήθης ἐστὶν ὑμῶν ὅστις ἀγνοεῖ τὸν ἐκεῖθεν πόλεμον δεῦρο ἤξοντα, ἂν ἀμελήσωμεν; ἀλλὰ μὴν εἰ τοῦτο γενήσεται, δέδοικα ὧ ἄνδρες Ἀθηναῖοι μὴ τὸν αὐτὸν τρόπον, ὥσπερ οἱ δανειζόμενοι ῥαδίως ἐπὶ τοῖς μεγάλοις τόκοις μικρὸν εὐπορήσαντες χρόνον ὑστερον καὶ τῶν ἀρχαίων ἀπέστησαν, οὕτω καὶ ἡμεῖς, ἂν ἐπὶ πολλῶ φανῶμεν ἐρραθυμηκότες καὶ ἅπαντα πρὸς ἡδονὴν ζητοῦντες, πολλὰ καὶ χαλεπὰ ὧν οὐκ ἠβουλόμεθα ὑστερον εἰς ἀνάγκην ἔλθωμεν ποιεῖν, καὶ κινδυνεύσωμεν περὶ τῶν ἐν αὐτῇ τῇ χώρᾳ.

1. (A.) τὸν δὲ ἰρέα . . . . τιμωρούς. Translate this passage into Latin, explaining accurately the differences, which present themselves, between the Greek and the Latin constructions. How do you show the fabulousness of the Egyptian chronology, as given by Herodotus? Do the supernatural events narrated in the last sentence (*ἐνθα τε νῦν καταδύεται, κ.τ.λ.*) appear to have been, in any degree, founded on fact?

2. Give the substance of Thucydides's view of the early history of Greece, with the most probable dates. Produce any quotations from Homer illustrative of the extract (B).

3. What part had Macedonia taken in the affairs of Greece before the time of Demosthenes? How do you account for the slightness of the resistance offered by Sparta to the progress of the arms of Philip?

4. State and explain the principal *legal* expressions which occur in the Olynthiacs and Philippics.

WEDNESDAY, July 19.—AFTERNOON, 3 to 6.

GREEK.

*Examiner, Mr. BURCHAM.*

Translate :

(A.) HOMER\*, ILLIAD, Book V., ver. 711–732.

Τοὺς δ' ὡς οὖν ἐνόησε θεὰ λευκώλενος Ἥρη  
 Ἀργείους ὀλέκοντας ἐνὶ κρατερῇ ὑσμίνῃ,  
 αὐτίκ' Ἀθηναίην ἔπεα πτερόεντα προσηύδα·  
 ὦ πόποι, αἰγιόχοιο Διὸς τέκος, Ἀτρυτώνη,  
 ἦ ῥ' ἄλιον τὸν μῦθον ὑπέστημεν Μενελάῳ  
 Ἴλιον ἐκπέρσαντ' εὐτείχεον ἀπονέεσθαι,  
 εἰ οὔτω μαίνεσθαι ἐάσομεν οὔλον Ἄρηα.  
 ἀλλ' ἄγε δὴ καὶ νῶϊ μεδώμεθα θούριδος ἀλκῆς·  
 ὦς ἔφατ'· οὐδ' ἀπίθησε θεὰ γλαυκῶπις Ἀθήνη.  
 ἦ μὲν ἐποιχομένη χρυσάμπυκας ἔντυεν ἵππους  
 Ἥρη, πρέσβα θεά, θυγάτηρ μέγαλοιο Κρόνοιο·  
 Ἥβη δ' ἀμφ' ὀχέεσσι θοῶς βάλε καμπύλα κύκλα,  
 χάλκεα, ὀκτάκνημα, σιδηρέῳ ἄξονι ἀμφίς.  
 τῶν ἦτοι χρυσῆ ἴτυς ἄφθιτος, αὐτὰρ ὑπερθεν  
 χάλκε' ἐπίσσωτρα, προσαρηρότα, θαῦμα ιδέσθαι·  
 πλήμναι δ' ἀργύρου εἰσὶ περίδρομοι ἀμφοτέρωθεν·  
 δίφρος δὲ χρυσεῖοσι καὶ ἀργυρέοισιν ἱμάσιν  
 ἐντέταται· δοιαὶ δὲ περίδρομοι ἄντυγές εἰσιν.  
 τοῦ δ' ἐξ ἀργύρεος ῥυμὸς πέλεν· αὐτὰρ ἐπ' ἄκρῳ  
 δῆσε χρύσειον καλὸν ζυγὸν ἐν δὲ λέπαδνα  
 κάλ' ἔβαλε, χρύσει'· ὑπὸ δὲ ζυγὸν ἤγαγεν Ἥρη  
 ἵππους ὠκύποδας μεμαυῖ ἔριδος καὶ αὐτῆς.

\* Edit. Spitzner.

## (B.) ÆSCHYLUS\*, PROMETHEUS, v. 880—908.

Ἵπὸ μ' αὖ σφάκελος καὶ φρενοπληγεῖς  
 Μανίαι θάλπουσ', οἴστρου δ' ἄρδεις  
 Χρῆμι μ' ἄπυρος·  
 Κραδία δὲ φόβῳ φρένα λακτίζει.  
 Τροχοδινεῖται δ' ὄμμαθ' ἐλίγδην,  
 Ἐξω δὲ δρόμου φέρομαι, λύσσης  
 Πνεύματι μάργω, γλώσσης ἀκρατής·  
 Θολεροὶ δὲ λόγοι παίους' εἰκῆ  
 Στυγνῆς πρὸς κύμασιν ἄτης.

## ΧΟΡΟΣ.

Ἦ σοφὸς, ἦ σοφὸς [ἦν],  
 Ὃς πρῶτος [ἐν γνώμῃ] τὸδ' ἐβάστασε  
 Καὶ γλώσσα διεμυθολόγησεν,  
 Ὡς τὸ κηδεῦσαι καθ' ἑαυτὸν ἀριστεύει μακρῶ·  
 Καὶ μήτε τῶν πλούτῳ διαθρυπτομένων,  
 Μήτε τῶν γέννα μεγαλυνομένων  
 Ὅντα χερνήταν ἐραστεῦσαι γάμων.  
 Μήποτε μήποτέ μ' ἀντ.  
 ὦ Μοῖραι λεχέων Διὸς  
 Εὐνάτειραν ἴδοισθε πέλουσαν·  
 Μηδὲ πλασθείην γαμέτα τινὶ τῶν ἐξ οὐρανοῦ.  
 Ταρβῶ γὰρ ἄστεργάνορα παρθενίαν  
 Εἰσορῶσ' Ἰοῦς γάμῳ δαπτομέναν  
 Δυσπλάνοις Ἡρας ἀλατείαις πόνων.  
 Ἔμοι δ' ὅτι μὲν ὀμαλὸς ὁ γάμος ἐπῶδ.  
 Ἄφοβος, οὐ δέδια μηδὲ κρεισσόνων  
 Θεῶν ἔρωσ ἀφυκτον ὄμμα προσδέροικτό με.  
 Ἀπόλεμος ὅδε γ' ὁ πόλεμος, ἄπορα πόριμος·  
 Οὐδ' ἔχω τίς ἂν γενοίμαν.  
 Τὰν Διὸς γὰρ οὐχ ὀρῶ μῆτιν ὅπα φύγοιμ' ἄν.

## (C.) SOPHOCLES†, ANTIGONE, v. 985—1019.

Γνώσει, τέχνης σημεία τῆς ἐμῆς κλύων.  
 εἰς γὰρ παλαιὸν θᾶκον ὀρνιθοσκόπον  
 ἴζων, ἴν' ἦν μοι παντὸς οἰωνοῦ λιμήν,

\* Edit. Wellauer.

† Edit. Herm.



ἀγνώτ' ἀκούω φθόγγον ὄρνιθων, κακῶ  
 κλάζοντας οἴστρω καὶ βεβαρβαρωμένῳ  
 καὶ σπῶντας ἐν χηλαῖσιν ἀλλήλους φοναῖς  
 ἔγνων· πτερῶν γὰρ ῥοῖβδος οὐκ ἄσημος ἦν·  
 εὐθύς δὲ δέλσας, ἐμπύρων ἐγευόμην  
 βωμοῖσι παμφλέκτοισιν· ἐκ δὲ θυμάτων  
 Ἕφαιστος οὐκ ἔλαμπεν, ἀλλ' ἐπὶ σποδῶ  
 μυδῶσα κηκὶς μηρίων ἐτήκετο,  
 κᾶτυφε, κἀνέπτυε· καὶ μετάρσιοι  
 χολαὶ διεσπείροντο, καὶ καταρῥυεῖς  
 μηροὶ καλυπτῆς ἐξέκειντο πιμελῆς.  
 τοιαῦτα παιδὸς τοῦδ' ἐμάνθανον πάρα  
 φθίνοντ' ἀσήμων ὀργῶν μαντεύματα.  
 ἐμοὶ γὰρ οὗτος ἡγεμών, ἄλλοις δ' ἐγώ.  
 καὶ ταῦτα τῆς σῆς ἐκ φρενὸς νοσεῖ πόλις.  
 βωμοὶ γὰρ ἡμῖν ἐσχάται τε παντελεῖς  
 πλήρεις ὑπ' οἰωνῶν τε καὶ κυνῶν βορᾶς  
 τοῦ δυσμόρου πεπτῶτος Οἰδίπου γόνου.  
 κᾶτ' οὐδέχονται θυστάδας λιτὰς ἔτι  
 θεοὶ παρ' ἡμῶν, οὐδὲ μηρίων φλόγα,  
 οὐδ' ὄρνις εὐσήμους ἀπορῥοιβδεῖ βοάς,  
 ἀνδροφθόρου βεβρῶτες αἵματος λίπος.

## (D.) EURIPIDES\*, ΜΕΔΕΑ, v. 579—615.

- ΜΗ. ἦ πολλὰ πολλοῖς εἰμὶ διάφορος βροτῶν  
 ἐμοὶ γὰρ, ὅστις ἄδικος ὢν, σοφὸς λέγειν  
 πέφυκε, πλείστην ζημίαν ὀφλισκάνει.  
 γλώσση γὰρ αὐχῶν τᾶδικ' εὖ περιστελεῖν,  
 τολμᾶ πανουργεῖν, ἔστι δ' οὐκ ἄγαν σοφός.  
 ὥς καὶ σὺ μὴ νῦν εἰς ἐμ' εὐσχήμων γένη,  
 λέγειν τε δεινός· ἐν γὰρ ἐκτενεῖ σ' ἔπος·  
 χρῆν σ', εἴπερ ἦσθα μὴ κακός, πείσαντ' ἐμὲ  
 γαμεῖν γάμον τόνδ', ἀλλὰ μὴ σιγῇ φίλων.
- ΙΑ. καλῶς γ' ἂν οὖν τῷδ' ἐξυπηρέτεις λόγῳ.  
 εἰ σοὶ γάμον κατεῖπον, ἦτις οὐδὲ νῦν  
 τολμᾶς μεθεῖναι καρδίας μέγαν χόλον.

\* Edit. Porsoni.



- ΜΗ. οὐ τοῦτό σ' εἶχεν, ἀλλὰ βάρβαρον λέχος  
πρὸς γῆρας οὐκ εὐδοξον ἐξέβαινέ σοι.
- ΙΑ. εὖ νυν τόδ' ἴσθι, μὴ γυναικὸς οὐνεκα  
γῆμαί με λέκτρα βασιλέως ἂ νῦν ἔχω·  
ἀλλ', ὥσπερ εἶπον καὶ πάρος, σῶσαι θέλων  
σέ, καὶ τέκνοισι τοῖς ἐμοῖς ὁμοσπόρους  
φῦσαι τυράννους παῖδας, ἔρυμα δώμασι.
- ΜΗ. μή μοι γένοιτο λυπρὸς εὐδαίμων βίος,  
μηδ' ὄλβος, ὅστις τὴν ἐμὴν κνίζοι φρένα.
- ΙΑ. οἴσθ' ὡς μετεύξει καὶ σοφωτέρα φανεί; ;  
τὰ χρηστὰ μὴ σοι λυπρὰ φαινέσθω ποτὲ,  
μηδ' εὐτυχοῦσα δυστυχῆς εἶναι δόκει.
- ΜΗ. ὕβριζ', ἐπειδὴ σοὶ μὲν ἔστ' ἀποστροφῆ,  
ἐγὼ δ' ἔρημος τήνδε φευξοῦμαι χθόαν.
- ΙΑ. αὐτὴ τάδ' εἴλου· μηδέν' ἄλλον αἰτιῶ.
- ΜΗ. τί δρῶσα; μων γαμοῦσα, καὶ προδοῦσά σε;
- ΙΑ. ἀρὰς τυράννοις ἀνοσίους ἀρωμένη.
- ΜΗ. καὶ σοῖς ἀραία γ' οὔσα τυγχάνω δόμοις.
- ΙΑ. ὡς οὐ κρινοῦμαι τῶνδέ σοι τὰ πλείονα.  
ἀλλ' εἴ τι βούλει παισὶν ἢ σαυτῇ, φυγῆς  
προσωφέλημα, χρημάτων ἐμῶν λαβεῖν,  
λέγ' ὡς ἔτοιμος ἀφθόνῳ δοῦναι χερὶ,  
ξένοις τε πέμπειν ξύμβολ', οἱ δρᾶσουσί σ' εὖ.  
καὶ ταῦτα μὴ θέλουσα μωρανεῖς, γύναι,  
λήξασα δ' ὀργῆς κερδανεῖς ἀμείνονα.

1. Mention the titles of the different poems that have been ascribed to Homer. What are the reasons given by Thucydides for believing the accounts of the Trojan expedition to have been much exaggerated? What does the expression *ράψωδεῖν* signify? Who were the *ράψωδοὶ*, and what other names did they bear?

2. Why is the Prometheus supposed to be one of the last productions of Æschylus? Of what trilogy did it form a portion? Which is the earliest of the extant plays of Sophocles, and about what time was it brought out? Give an analysis of the Antigone. What seems to have been its general object?

3. Into what feet of an Iambic Senarius can Anapæsts and Dactyls be admitted? What are Dawes's rules by which the quantity of a vowel preceding  $\beta\lambda$ ,  $\beta\rho$ ,  $\gamma\lambda$ , &c. is determined? Show by instances the inaccuracy of them.

4. Explain the construction of the particles  $\acute{\iota}\nu\alpha$ ,  $\acute{\omega}\varsigma$ ,  $\acute{\omicron}\pi\omega\varsigma$ ,  $\acute{\omicron}\phi\rho\alpha$ , followed by the indicative mood. By what moods and tenses and with what difference of meaning are the particles  $\omicron\upsilon\ \mu\eta$  followed? Show the difference of construction between  $\chi\rho\acute{\eta}$  and  $\delta\epsilon\acute{\iota}$ .

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THURSDAY, July 20.—MORNING, 10 to 1.

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LATIN.

*Examiner, MR. BURCHAM.*

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Translate into English:

(A.) LIVY\*, Book XXI. chap. 3.

In Hasdrubalis locum haud dubia res fuit, quin prærogativam militarem, qua extemplo juvenis Hannibal in prætorium delatus, imperatorque ingenti omnium clamore atque adsensu adpellatus erat, favor etiam plebis sequeretur. Hunc vixdum puberem Hasdrubal literis ad se arcesserat: actaque res etiam in senatu fuerat, Barcinis nitentibus, ut adsuesceret militiæ Hannibal, atque in paternas succederet opes. Hanno, alterius factionis princeps, 'Et æquum postulare videtur,' inquit, 'Hasdrubal; et ego tamen non censeo, quod petit, tribuen-

\* Edit. Ernesti.

dum.' Quum admiratione tam ancipitis sententiæ in se omnes convertisset, 'Florem ætatis,' inquit, 'Hasdrubal, quem ipse patri Hannibalis fruentum præbuit, justo jure eum a filio repeti censet; nos tamen minime decet, juventutem nostram pro militari rudimento adsuefacere libidini prætorum. An hoc timemus, ne Hamilcaris filius nimis sero imperia inmodica et regni paterni speciem videat? et, cujus regis genero hereditarii sint relictis exercitus nostri, ejus filio parum mature serviamus? Ego, istum juvenem domi tenendum, sub legibus, sed magistratibus docendum vivere æquo jure cum ceteris, censeo: ne quandoque parvus hic ignis incendium ingens exsuscitet.'

(B.) CICERO\*, DE SENECTUTE, chap. 15.

Venio nunc ad voluptates agricolarum, quibus ego incredibiliter delector: quæ nec ulla impediuntur senectute et mihi ad sapientis vitam proxime videntur accedere. Habent enim rationem cum terra, quæ nunquam recusat imperium, nec unquam sine usura reddit, quod accepit, sed alias minore, plerumque majore cum fœnore. Quamquam me quidem non fructus modo, sed etiam ipsius terræ vis ac natura delectat. Quæ, quum gremio mollito ac subacto sparsum semen excepit, primum id occæcatum cohibet:—ex quo occatio, quæ hoc efficit, nominata est:—deinde tepefactum vapore et compressu suo diffundit et elicit herbescentem ex eo viriditatem: quæ nixa fibris stirpium sensim adolescit culmoque erecta geniculato vaginis jam quasi pubescens includitur; e quibus quum emersit, fundit frugem spici ordine structam, et contra avium minorum morsus munitur vallo aristarum. Quid ego vitium ortus, satus, incrementa commemorem? Satiari delectatione non possum, ut meæ senectutis quietem oblectamentumque noscatis. Omitto enim vim ipsam omnium, quæ generantur e terra; quæ ex fici tantulo grano aut ex acino vinaceo aut ex ceterarum frugum ac stirpium minutissimis seminibus tantos truncos ramosque procreat. Malleoli, plantæ, sarmenta, viviradices, propagines nonne ea efficiunt, ut quemvis cum admiratione delectent? Vitis quidem, quæ natura ca-

\* Edit. Orellii.



duca est, et nisi fulta sit, fertur ad terram, eadem, ut se erigat, claviculis suis quasi manibus, quidquid est nacta, complectitur: quam serpentem multiplici lapsu et erratico ferro amputans coërcet ars agricolarum, ne silvescat sarmentis et in omnes partes nimia fundatur.

(C.) TACITUS\*; ANNALS, Book I. chap. 65.

Nox per diversa inquires; cum barbari festis epulis, læto cantu aut truci sonore subjecta vallium ac resultantes saltus complerent; apud Romanos invalidi ignes, interruptæ voces, atque ipsi passim adjacerent vallo, oberrarent tentoriis, insomnes magis quam pervigiles: ducemque terruit dira quies: nam Quinctilium Varum, sanguine oblitum et paludibus emersum, cernere et audire visus est, velut vocantem, non tamen obsecutus, et manum intendentis repulisse. Cœpta luce, missæ in latera legiones, metu an contumacia, locum deseruere; capto propere campo, humentia ultra. Neque tamen Arminius, quamquam libero incursu, statim prorupit: sed, ut hæere cœno fossisque impedimenta, turbati circum milites, incertus signorum ordo, utque tali in tempore, sibi quisque properus et lentæ adversum imperia aures, inrumpere Germanos jubet, clamitans, “En Varus, et eodem iterum fato victæ legiones!” Simul hæc, et cum delectis scindit agmen, equisque maxime vulnera ingerit: illi sanguine suo et lubrico paludum lapsantes, excussis rectoribus, disjicere obvios, proterere jacentes. Plurimus circa aquilas labor, quæ neque adversum ferri ingruentia tela, neque figi limosa humo poterant. Cæcina, dum sustentat aciem, suffosso equo delapsus, circumveniebatur, ni prima legio sese opposuisset: juvit hostium aviditas, omissa cæde, prædam sectantium: enisæque legiones, vesperascente die, in aperta et solida. Neque is miseriarum finis: struendum vallum, petendus agger: amissa magna ex parte, per quæ egeritur humus, aut exciditur cespes; non tentoria manipulis, non fomenta sauciis: infectos cœno aut cruore cibos dividentes, funestas tenebras, et tot hominum millibus unum jam reliquum diem lamentabantur.

\* Edit. Ernesti.

1. Mention the principal events recorded in the twenty-first book of Livy. With what limitation is the expression, 'hunc vixdum puberem,' in extract (A.) to be received? "Cum hoc Hadsrubale fœdus renovaverat populus Romanus, ut finis utriusque imperii esset amnis Iberus." What do you understand by the words 'finis utriusque imperii'? What is the character given by Livy of Hannibal (Book XXI. chap. 4.)?

2. What is the exact meaning of the word 'prærogativa'? In what sense is it used in the following sentences?—"Comitiorum militarium prærogativam urbana comitia sequuntur." "Supplicatio est prærogativa triumphi." "Adjecerunt equitum prærogativæ auctoritatem consules, quam forti fidelique duorum præcipue legatorum opera usi essent, commemorantes."

3. Illustrate the following passages from the *De Amicitia* and the *De Senectute*:—"Suasor legis Cincinæ fuit." "Cum ego quidem, V et LX annos natus, Legem Voconiam voce magna et bonis lateribus suasissem." "Meministis quam popularis lex de sacerdotiis C. Licinii Crassi videbatur; cooptatio enim collegiorum ad populi beneficium transferebatur." "Hæc enim ipsa sunt honorabilia, quæ videntur levia atque communia, salutari, appeti, decedi, assurgi, deduci, reduci, consuli."

4. What are the principal changes in the Roman government mentioned by Tacitus (*Ann.*, lib. i. cap. 1.)? Give the date of each. What was the extent of the Roman empire under Augustus? Give a list of the twelve Cæsars in order. What was the eastern boundary of the Roman empire in the time of Augustus? By whom was it afterwards extended?



THURSDAY, July 20.—AFTERNOON, 3 to 6.

---

LATIN.

*Examiner, Rev. Dr. JERRARD.*

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Translate :

(A.) VIRGIL\*, ECLOGUE IV. 1—25.

Sicelides Musæ, paullo majora canamus ;  
 Non omnis arbusta juvant humilesque myricæ ;  
 Si canimus silvas, silvæ sint Consule dignæ.  
 Ultima Cumæi venit jam carminis ætas ;  
 Magnus ab integro sæclorum nascitur ordo.  
 Jam redit et Virgo ; redeunt Saturnia regna ;  
 Jam nova progenies cœlo demittitur alto.  
 Tu modo nascenti puero, quo ferrea primum  
 Desinet, ac toto surget gens aurea mundo,  
 Casta, fave, Lucina : tuus jam regnat Apollo.  
 Teque adeo decus hoc ævi, te Consule, inibit,  
 Pollio ; et incipient magni procedere menses.  
 Te duce, si qua manent, sceleris vestigia nostri  
 Inrita perpetua solvent formidine terras.  
 Ille deum vitam adcipiet, divisque videbit  
 Permixtos heroas, et ipse videbitur illis ;  
 Pacatumque reget patriis virtutibus orbem.  
 At tibi prima, puer, nullo munuscula cultu,  
 Errantis ederas passim cum baccare, tellus,  
 Mixtaque ridenti colocasia fundet acantho.  
 Ipsæ lacte domum referent distenta capellæ  
 Ubera ; nec magnos metuent armenta leones.  
 Ipsa tibi blandos fundent cunabula flores.  
 Occidet et serpens, et fallax herba veneni  
 Occidet ; Assyrium vulgo nascetur amomum.

\* Edit. Heyne.

l. 48—51.

Adgredere o magnos (aderit jam tempus) honores,  
 Cara deum suboles, magnum Jovis incrementum!  
 Adspice convexo nutantem pondere mundum;  
 Terrasque tractusque maris cœlumque profundum.

(B.) VIRGIL\*, GEORGICS, Book I. 481—492.

Proluit insano contorquens vertice silvas  
 Fluviorum rex Eridanus, camposque per omnis  
 Cum stabulis armenta tulit. Nec tempore eodem  
 Tristibus aut extis fibræ adparere minaces,  
 Aut puteis manare cruor cessavit; et altæ  
 Per noctem resonare, lupis ululantibus, urbes.  
 Non alias cœlo ceciderunt plura sereno  
 Fulgura; nec diri toties arsere cometæ.  
 Ergo inter sese paribus concurrere telis  
 Romanas acies iterum videre Philippi;  
 Nec fuit indignum superis, bis sanguine nostro  
 Emathiam et latos Hæmi pinguescere campos.

(C.) HORACE†, ODES, Book III. 25—44.

O quisquis volet impias  
 Cædes et rabiem tollere civicam,  
 Si quæret Pater Urbium  
 Subscribi statuis, indomitam audeat  
 Refrænare licentiam,  
 Clarus postgenitis, quatenus, heu nefas,  
 Virtutem incolumem odimus,  
 Sublatam ex oculis quærimus invidi.  
 Quid tristes querimoniæ,  
 Si non supplicio culpa reciditur?  
 Quid leges, sine moribus  
 Vanæ, proficiunt, si neque fervidis  
 Pars inclusa caloribus  
 Mundi, nec Boreæ finitimum latus,  
 Duratæque solo nives,  
 Mercatorem abigunt? horrida callidi

\* Edit. Heyne.

† Edit. Doering.

Vincunt æquora navitæ?  
 Magnum pauperies opprobrium jūbet  
 Quidvis et facere et pati,  
 Virtutisque viam deserit arduæ?

(D.) HORACE, SATIRES, Book II. 19—44.

Quî partum? Non in caro nidore voluptas  
 Summa, sed in te ipso est. Tu pulmentaria quære  
 Sudando; pinguem vitiis albumque neque ostrea  
 Nec scarus, aut poterit peregrina juvare lagois.  
 Vix tamen eripiam, posito pavone, velis quin  
 Hoc potius, quam gallina tergere palatum,  
 Corruptus vanis rerum; quia veneat auro  
 Rara avis, et picta pandat spectacula cauda:  
 Tanquam ad rem attineat quidquam. Num vesceris ista,  
 Quam laudas, pluma? cocto num adest honor idem?  
 Carne tamen, quamvis distat nihil, hac magis illa!  
 Imparibus formis deceptum te patet. Esto!  
 Unde datum sentis, lupo hic Tiberinus, an alto  
 Captus hiet? pontesne inter jactatus; an amnis  
 Ostia sub Tusci? Laudas, insane, trilibrem  
 Mullum, in singula quem minuas pulmenta necesse est.  
 Ducit te species, video; quo pertinet ergo  
 Proceros odisse lupos? Quia scilicet illis  
 Majorem natura modum dedit, his breve pondus.  
 Jejunos raro stomachus vulgaria temnit.  
 Porrectum magno magnum spectare catino  
 Vellem, ait Harpyiis gula digna rapacibus. At vos  
 Præsentes, Austri, coquite horum obsonia! Quamquam  
 Putet aper rhombusque recens, mala copia quando  
 Ægrum sollicitat stomachum, quum rapula plenus  
 Atque acidas mavult inulas.

1. . . . Ego vectigalia magna  
 Divitiasque habeo tribus amplas regibus. Ergo  
 Quod superest, non est, melius quo insumere possis?  
 Cur eget indignus quisquam te divite? quare  
 Tempa ruunt antiqua Deum?

Translate this. Prove from other passages, and account for, the immense wealth possessed by certain individuals at Rome in the time of Horace. Show also how excessive was the luxury which prevailed among the rich. Was there any legal provision for the poor? Do many of the inhabitants appear to have been in a state of want? "Templa ruunt." Sallust tells us that the temples built by the ancient Romans were noble, the private dwellings, humble. Was the converse of this true in the age of Augustus? Support your opinion by quotations.

2. (C.) "Indomitam audeat refrænare licentiam." "Quid leges sine moribus?" To whom does Horace seem to refer? Give quotations, illustrative of this extract, from other parts of his works.

3. Illustrate the extract (A.), and the 4th Eclogue generally, by quotations from Pope and other poets—and the extract (B.), by quotations from Shakspeare and other authors. How would you solve the historical difficulty in (B.)?

4. Give the etymology of *ærumna*, *armentum*, *aruspex*, *auriga*, *bustum*, *calamitas*, *Camœnæ*, *foedus*, *locuples*, *urbs*—and point out the difference between *seges* and *messis*—*arista*, *spica*, *palea* and *culmus*.



## PASS EXAMINATION.

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| BRINTON, WILLIAM .....           | Private tuition.                 |
| BUCK, SHEPHERD RAY .....         | Private tuition.                 |
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| BURGON, JOSEPH .....             | University College.              |
| CAMMACK, ALFRED .....            | Horncastle Grammar School.       |
| CAMMACK, THOMAS ARMSTRONG .      | Horncastle Grammar School.       |
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| CONNERY, JOHN AUGUSTINE.....     | St. Peter's, Prior Park.         |
| CUFFE, LUCIAN WILLIAM.....       | St. Gregory's, Downside.         |
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| FYNES, HENRY JAMES .....         | St. Gregory's, Downside.         |
| GALLWEY, AUGUSTUS .....          | Stonyhurst College.              |
| GAMMAN, ANDREW .....             | Spring Hill College.             |
| GARVEY, RICHARD .....            | Highbury College.                |
| GIBSON, JOHN REEVE .....         | University College.              |
| GOODMAN, WILLIAM.....            | Stepney College.                 |
| GREEN, JAMES CHARLES .....       | Stepney College.                 |
| GUYER, JOHN GRIFFIN .....        | University College.              |
| HALL, RICHARD .....              | Stepney College.                 |
| HUNTER, WILLIAM ADAMS.....       | Royal Belfast Acad. Institution. |
| HUTTON, RICHARD HOLT.....        | University College.              |
| KEANE, DENIS .....               | Carlow College.                  |
| KEHOE, ANTHONY .....             | Carlow College.                  |
| KIMBER, THOMAS .....             | University College.              |
| KITSON, JOHN .....               | University College.              |
| KNOWLES, WILLIAM DUNCAN .....    | Spring Hill College.             |
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| LITTLETON, THOMAS .....          | Private tuition.                 |
| M'CANN, JOHN .....               | Stonyhurst College.              |
| MACDONNELL, JOHN RANDAL.....     | University College.              |
| MACEVROY, ARTHUR .....           | St. Mary's, Oscott.              |
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| MATTHEW, JOSEPH FARMER .....     | University College.              |



|                                |                          |
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| MEASON, ADAM LAING.....        | Stonyhurst College.      |
| MINSHALL, JOHN .....           | Spring Hill College.     |
| MYLIUS, JOHN FREDERICK .....   | Stonyhurst College.      |
| NICHOLSON, GEORGE.....         | Highbury College.        |
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| BRAMWELL, CHARLES CRIGHTON .   | Sheffield Proprietary Gram. School.      |
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| CRISP, HENRY .....             | King's College.                          |
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| DAY, WILLIAM HANKES .....      | Yarmouth Prop <sup>y</sup> Gram. School. |
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EXAMINATIONS

FOR THE DEGREE OF

BACHELOR OF MEDICINE

IN THE YEAR 1843.

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FIRST EXAMINATION.



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*Chemistry.*

Professor DANIELL, F.R.S.

*Botany.*

Rev. Professor HENSLOW.

*Materia Medica and Pharmacy.*

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1843. JAMES HAKES.—Exhibition and Gold Medal.  
PETER REDFERN.—Gold Medal.

# FIRST EXAMINATION.

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## PASS EXAMINATION.

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MONDAY, August 7.—MORNING, 10 to 1.

---

### ANATOMY AND PHYSIOLOGY.

*Examiners*, Mr. KIERNAN and Prof. SHARPEY.

---

1. A VERTICAL section of the Skull being made in the median plane, and in the dry state, and the septum nasi being removed, describe the parts brought into view. Commence the answer by enumerating the bones divided in the section, and proceed with the description in the following order, mentioning the processes, depressions and foramina,—1st, the inner surface of the cranium; 2nd, the roof, floor and outer wall of the nasal cavity; 3rd, the roof of the mouth and the inner surface of the inferior maxillary bone. The attachments of muscles not required.

2. Commencing the dissection at the Integuments, and proceeding with it as far as the outer surface of the Internal Pterygoid and the Styloid Muscles, describe the parts successively exposed in dissecting the space bounded above by the Zygoma, below by the base of the inferior Maxilla, in front by the anterior margin of the Masseter, and behind by the Meatus Auditorius, Mastoid process and upper part of the Sterno-Cleido-Mastoideus.



3. Give the anatomy of the external circumflex artery of the Thigh; state the steps of the dissection required to display it in its entire course, and describe the parts exposed in the dissection.

4. Describe the soft parts met with in dissecting the anterior and outer region of the Leg, and the dorsum of the Foot.

5. Give a description of the Duodenum, comprehending its form, situation, connections and structure, its vessels and nerves, Brunner's glands, and the mode of opening of the biliary and pancreatic ducts.

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*MONDAY, August 7.—AFTERNOON, 3 to 6.*

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## ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

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1. The Vertebral Column and the rami of the lower jaw being removed, describe the external surface of the Pharynx, the attachments of its muscles, and the course of their fibres; and the muscles of the soft palate as far as they can be seen in this stage of the dissection. The pharynx being opened from behind, describe the parts then brought into view; the description to include that of the posterior nares, the soft palate, its arches and muscles, the isthmus faucium, the dorsum of the tongue, its glands and papillæ, the epiglottis and its folds, and the superior aperture of the larynx.

2. Give the dissection required to expose the internal Pudic Artery and its branches, after it has turned round the spinous process of the ischium; commencing the dissection

in the perineum, and describing the parts which successively appear in the progress of it.

3. Commencing the dissection at the inner surface of the lower portion of the anterior wall of the abdomen, at a transverse line drawn from the anterior superior spinous process of the Ilium to the mesial line, and dissecting from above downwards, and from the peritoneum to the integuments, describe the parts successively exposed, particularly with reference to the Inguinal canal, its contents and boundaries.

4. Give the structure and chemical composition of Muscular Tissue, the arrangement of its nerves and blood-vessels, and the difference in structure between voluntary and involuntary muscles.

5. By what mechanism is air introduced into and expelled from the lungs in respiration? Enumerate the muscles which are constantly, and those which are only occasionally employed in inspiration and expiration.

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*TUESDAY, August 8.—MORNING, 10 to 1.*

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## CHEMISTRY.

*Examiner, Professor DANIELL.*

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1. A saline powder will be placed before you with a blow-pipe, lamp and charcoal: test the powder, state its composition, and describe the phenomena which it presents by the application of the flame, and explain their causes.

2. A saline solution will be placed before you marked A, with appropriate tests: explain the changes which will take place upon their application, and name the acid and base of which the salt has been composed.

3. What was the great fault of the Thermometer as originally constructed by the Italian philosophers at the beginning of the 17th century; and how was it corrected by Sir Isaac Newton?

4. Describe the processes by which uniformity of temperature is brought about in a system of bodies originally of different temperatures, and the principal circumstances which influence each.

5. Describe and explain the principal phenomena of Electric Induction.

6. What were the respective shares of Galvani and Volta in the discovery of Galvanism or Voltaic Electricity? Describe and explain the fundamental experiments of each.

7. What are the principal advantages which the science of Chemistry has derived from the establishment of Dalton's Atomic Theory?

8. How may the presence of Nitrogen be detected, and its amount be ascertained in an Organic Compound?

9. What is Phosphorus? State its principal physical properties, its equivalent number, and describe its combinations with Oxygen.

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TUESDAY, August 8.—AFTERNOON, 3 to 6.

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STRUCTURAL AND PHYSIOLOGICAL BOTANY.—MATERIA MEDICA AND PHARMACY.

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STRUCTURAL AND PHYSIOLOGICAL BOTANY.

*Examiner*, Prof. HENSLOW.

1. Compare a campanulate with a rotate corolla, and a corymbiform with an umbellate inflorescence. Illustrate your comparison by a slight sketch of each.

2. Whence does the Arillus originate? Name two good examples of plants of different families in which it occurs.

3. How do you explain the formation of central and parietal Placentæ? Name an example of each.

4. What is the nature of vegetable Albumen? Is it found in the seeds of *Ranunculus*, *Pisum*, *Sinapis*, *Primula*, and *Geranium*?

5. What is a Stipule? Are the plants in *Rosaceæ*, *Leguminosæ*, *Cruciferæ*, generally stipulate or not?

6. How is the genus *Cuscuta* supplied with nourishment? What peculiarity is observable in the structure of its embryo?

7. What are "adventitious buds"; and how do you suppose they have originated?

8. }  
9. } Describe these specimens.  
10. }

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## MATERIA MEDICA AND PHARMACY.

*Examiner, Dr. PEREIRA.*

1. Describe the method of preparing the *Antimonii Potassio tartras* according to the London Pharmacopœia, and explain the chemical changes which attend the process. State the composition, effects, uses and doses of this salt, and also the tests by which its presence may be recognised.

2. Give the botanical characters of *Aconitum Napellus*. Mention the peculiarities of its action on the system; name the diseases for which it is especially adapted; and state the best mode of using it externally as well as internally.

3. How would you distinguish *Liquor Sodæ effervescens*, Ph.L., from mere carbonic acid water? With what metal is the Soda Water of the shops frequently contaminated, and how would you detect the impurity?

4. What are the appropriate doses, for an adult, of the following substances: Benzoic Acid, Sal Ammoniac, Tris-



nitrate of Bismuth, Biniodide of Mercury, and Bromide of Potassium?

5. How would you detect the adulteration of Balsam of Copaiba with Castor Oil?

6. Enumerate the principal Cathartics. In how many groups or orders may they be conveniently arranged? What are the peculiar effects and uses of each group?

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*FRIDAY, August 11th.*

CHEMISTRY, AND MATERIA MEDICA AND  
PHARMACY.

By Vivâ Voce Interrogation, and Demonstration from Specimens.

*Examiners, Prof. DANIELL and Dr. PEREIRA.*

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*MONDAY, August 14th.*

ANATOMY AND PHYSIOLOGY.

By Vivâ Voce Interrogation, and Demonstration from Preparations and the recent Subject.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*



## EXAMINATION FOR HONOURS.

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*THURSDAY, August 17.—MORNING, 10 to 1.*

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### ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

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STATE the dissection required to expose the glosso-pharyngeal nerve and its branches after its exit from the cranium; commencing at the integuments, and describing the several parts brought into view in the dissection. The tympanic branch of the nerve not to be traced.

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*THURSDAY, August 17.—AFTERNOON, 3 to 6.*

---

### ANATOMY AND PHYSIOLOGY.

*Examiners, Mr. KIERNAN and Prof. SHARPEY.*

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1. A line being drawn round the arm two inches above, and another two inches below the bend of the elbow, describe the soft parts seen in dissecting the included portion of the

limb, both before and behind, in the order in which they appear. The joint not to be described.

2. Give an account of the structure and mode of distribution of the capillary vessels in general, with the differences they present in respect of size, number and arrangement in different textures, and in the same texture at different periods of life. What evidence can be adduced for, and what against the existence of colourless capillaries?

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FRIDAY, August 18.—MORNING, 10 to 1.

---

CHEMISTRY.

*Examiner*, Professor DANIELL.

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1. What are the analogies which subsist between Light and Heat? Why, in a bright winter's day, is the snow melted around a leafless shrub or a post, whilst it is little affected by the direct rays of the sun?

2. What do you mean by *Specific Electric Induction*?

3. State Professor Ohm's theory of Voltaic force and resistances; and apply his formulæ  $\frac{E}{R+r} = A$  and  $\frac{n E}{n R+r} = A$  to the explanation of quantity and intensity in the Voltaic Current.

4. To what is the (so-called) *polarization* of the plates and electrodes of a Voltaic Circuit to be ascribed; and how may it be prevented?

5. Describe the principal phenomena of Magneto-Electric Induction.

6. Describe and exemplify the characters of *Monobasic*, *Bibasic* and *Tribasic* acids.

7. What is Professor Graham's view of the constitution of *Double Salts*?

8. Draw a parallel between the principal compounds of Ethule and Methule.

9. What would be the products, carefully collected, of ten grains of Tartrate of Silver ( $\bar{T} + 2 \text{AgO}$ ) burned with Oxide of Copper; the Silver to be determined by a separate experiment?

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FRIDAY, August 18.—AFTERNOON, 3 to 6.

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MATERIA MEDICA AND PHARMACEUTICAL  
CHEMISTRY.

*Examiner*, Dr. PEREIRA.

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1. How is the presence or absence of Copper in Oil of Cajuputi to be ascertained? If powdered Rhubarb were adulterated with powdered Turmeric, by what chemical test would you detect the fraud? By what chemical means would you determine the absence of Poppy Oil in a given sample of Castor Oil?

2. Describe the microscopic appearances of Starch-grains, and point out by what characters you would detect the presence of Potato Starch in West India Arrow Root, illustrating your answer by a sketch of the shapes, &c. of these two kinds of amylaceous grains.

3. Describe the mode of preparing the *Antimonii Oxysul-*

*phuretum*, Ph. Lond.; explain the chemical changes which attend the process; and state the composition of this medicine.

4. Describe the effects and uses of Arsenious Acid; and especially point out those symptoms which are apt to follow the long-continued medicinal employment of this substance. State what remedies you would resort to in a case of acute arsenical poisoning.

5. Enumerate the principal purposes for which Cold is employed as a therapeutical agent.

6. Describe the botanical characters and medicinal qualities of *Ranunculaceæ*.

7. Name the substances respectively numbered 1, 2, 3, 4, 5 and 6.

## PASS EXAMINATION.

### *First Division.*

|                                   |                             |
|-----------------------------------|-----------------------------|
| BLOUNT, JOHN HILLIER . . . . .    | King's College.             |
| DUNCAN, JAMES . . . . .           | King's College.             |
| EYRE, BENJAMIN MAGOR . . . . .    | University College.         |
| HAKES, JAMES . . . . .            | University College.         |
| HAWKSLEY, THOMAS . . . . .        | King's College.             |
| HERAPATH, WILLIAM BIRD . . . . .  | Bristol Medical School.     |
| JACKSON, ALFRED . . . . .         | University College.         |
| JEMMETT, BENJAMIN LANCASTER . .   | King's College.             |
| LITTLETON, NICHOLAS HENRY . . . . | University College.         |
| NOOTT, WILLIAM FRANCIS . . . . .  | King's College.             |
| REDFERN, PETER . . . . .          | Queen's College, Edinburgh. |
| REES, GEORGE AUGUSTUS . . . . .   | St. Bartholomew's Hospital. |
| RUBIDGE, RICHARD NATHANIEL . .    | Guy's Hospital.             |
| SCOFFERN, JOHN . . . . .          | Aldersgate.                 |
| WALCOTT, ROBERT BOWIE . . . . .   | St. Thomas's Hospital.      |

### *Second Division.*

|                                   |                                         |
|-----------------------------------|-----------------------------------------|
| ALLCHIN, WILLIAM HENRY . . . . .  | University College.                     |
| BAINES, MATTHEW . . . . .         | King's College.                         |
| BARKER, THOMAS HERBERT . . . . .  | Middlesex Hospital.                     |
| GLEESON, EDWARD MOLONY . . . . .  | Orig. Sch. of Anat., Peter-st., Dublin. |
| HENSLEY, FREDERICK JOHN . . . . . | King's College.                         |
| SNOW, JOHN . . . . .              | Westminster Hospital.                   |



## EXAMINATION FOR HONOURS.

*The names are arranged in the order of proficiency.*

### ANATOMY AND PHYSIOLOGY.

JACKSON, ALFRED (*Exhibition & Gold Medal*) University College.  
JEMMETT, BENJ. LANCASTER (*Gold Medal*) King's College.  
HAKES, JAMES . . . . . University College.  
REDFERN, PETER . . . . . Queen's Coll., Edinburgh.  
EYRE, BENJAMIN MAGOR . . . . . University College.  
LITTLETON, NICHOLAS HENRY . . . . . University College.

### CHEMISTRY.

HAKES, JAMES. . (*Exhibition & Gold Medal*). University College.  
{ JEMMETT, BENJAMIN LANCASTER . . . . . King's College.  
{ LITTLETON, NICHOLAS HENRY . . . . . University College.

### MATERIA MEDICA AND PHARMACEUTICAL CHEMISTRY.

HAKES, JAMES. . (*Exhibition & Gold Medal*). University College.  
REDFERN, PETER. . . (*Gold Medal*). . . . . Queen's Coll., Edinburgh.  
JEMMETT, BENJAMIN LANCASTER . . . . . King's College.  
JACKSON, ALFRED . . . . . University College.  
LITTLETON, NICHOLAS HENRY . . . . . University College.

RICHARD AND JOHN E. TAYLOR,  
PRINTERS TO THE UNIVERSITY OF LONDON,  
RED LION COURT, FLEET STREET.

SECOND EXAMINATION.



## EXAMINERS.

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### *Physiology and Comparative Anatomy.*

Professor T. RYMER JONES.

### *Surgery.*

JOHN BACOT, Esq.

Sir STEPHEN LOVE HAMMICK, Bart.

### *Medicine.*

ARCHIBALD BILLING, M.D.

ALEXANDER TWEEDIE, M.D., F.R.S.

### *Midwifery.*

EDWARD RIGBY, M.D.

### *Forensic Medicine.*

EDWARD RIGBY, M.D.

Professor DANIELL, F.R.S.

JONATHAN PEREIRA, M.D., F.R.S.

### *Structural and Physiological Botany.*

Rev. Professor HENSLOW.

UNIVERSITY MEDICAL SCHOLARS, AND  
MEDALLISTS.

*Physiology and Comparative Anatomy.*

1840. RICHARD QUAIN.—Scholarship and Gold Medal.  
JOHN PADDON.—Gold Medal.  
1841. JOHN PHILIPS POTTER.—Scholarship and Gold Medal.  
EDMUND ALEXANDER PARKES.—Gold Medal.  
1842. GEORGE JOHNSON.—Scholarship and Gold Medal.  
JOHN TRAVIS DUNN.—Gold Medal.  
1843. EDWARD BALLARD.—Scholarship and Gold Medal.  
JOSEPH HULLETT BROWNE.—Gold Medal.

*Surgery.*

1840. JOHN CHARLES BUCKNILL.—Gold Medal.  
1841. JOHN PHILIPS POTTER.—Scholarship and Gold Medal.  
1842. JOHN WILSON CROKER PENNELL.—Gold Medal.  
1843. JOHN TOPHAM.—Scholarship and Gold Medal.  
    { JOSEPH HULLETT BROWNE.—Gold Medal.  
    { SILAS STILWELL STEDMAN.—Gold Medal.

*Medicine.*

1840. THOMAS O'MEARA.—Scholarship and Gold Medal.  
JOHN DOUGLAS STRANG.—Gold Medal.  
1841. CHAS. BRODIE SEWELL.—Scholarship & Gold Medal.  
DAYRELL JOS. THACKWELL FRANCIS.—Gold Medal.  
1842. { ALFRED BARING GARROD.—Gold Medal.  
      { JOSEPH GRIFFITHS SWAYNE.—Gold Medal.  
1843. EDWARD BALLARD.—Scholarship and Gold Medal.  
HENRY FEARNSTIDE.—Gold Medal.

*Midwifery.*

1840. JOHN DOUGLAS STRANG.—Gold Medal.  
1841. WILLIAM WAY.—Gold Medal.  
1842. JOSEPH GRIFFITHS SWAYNE.—Gold Medal.

*Structural and Physiological Botany.*

1841. JOHN DEAKIN HEATON.—Gold Medal.



## SECOND EXAMINATION.

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### PASS EXAMINATION.

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*MONDAY, November 6.—MORNING, 10 to 1.*

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#### PHYSIOLOGY.

*Examiner, Prof. T. RYMER JONES.*

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1. IN what classes of animals does a PORTAL CIRCULATION exist? Describe the arrangement of the Portal System in each class wherein it is found.
2. How is ABSORPTION effected in the INVERTEBRATA? State your reasons for the opinion you give.
3. Describe CILIARY MOTION. State the principal opinions of Physiologists as to its cause, and the more important uses to which it is subservient in various races of animals.
4. Describe the respiratory apparatus of a PERENNIBRANCHIATE BATRACHIAN, and the general course of the circulation of its blood.
5. Contrast the auditory apparatus of a Cuttle-Fish, a Fish and a Reptile.
6. What races of animals possess a distinct URINARY APPARATUS? Describe the principal varieties in its composition and arrangement.
7. Describe the CORPORA WOLFFIANA.

MONDAY, November 6.—AFTERNOON, 3 to 6.

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GENERAL PATHOLOGY, GENERAL THERAPEUTICS AND HYGIENE.

CELSUS *DE RE MEDICA*.

*Examiners*, Dr. BILLING and Dr. TWEEDIE.

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1. Mention the deviations to which the fibrin of the blood is subject in disease, giving examples, 1. of those diseases in which there is an excess, and 2. of those in which there is a deficiency of this constituent. What consequences have been occasionally observed to follow a deficiency of fibrin?

2. Give an outline of the treatment of spontaneous hemorrhage, stating the indications to be kept in view, and the measures best calculated to fulfil them.

3. Describe the effects of insufficient nourishment on the human body, in the respective periods of infancy and manhood.

4. Translate the following passage into English:—

Sanus homo, qui et benè valet, et suæ spontis est, nullis obligare se legibus debet; ac neque medico neque iatraliptâ egere. Hunc oportet varium habere vitæ genus; modò ruri esse, modò in urbe, sæpiùsque in agro; navigare, venari, quiescere interdum, sed frequentiùs se exercere, siquidem ignavia corpus hebetat, labor firmat: illa maturam senectutem, is longam adolescentiam reddit. Prodest etiam interdùm balneo, interdùm aquis frigidis uti; modò ungi, modò id ipsum negligere; nullum cibi genus fugere quo populus utatur; interdùm in convictu esse, interdùm ab eo se retrahere; modò plus justo, modò non ampliùs assumere; bis die potiùs, quàm semel cibum capere; et semper quàm plurimum, dummodò hunc concoquat. Sed ut hujus generis exercitationes cibique

necessarii sunt, sic athletici supervacui: nam et intermissus propter aliquas civiles necessitates ordo exercitationis corpus affligit; et ea corpora quæ more eorum repleta sunt, celerimè et senescunt et ægrotant. (*Celsus*, Lib. i. cap. i.)

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TUESDAY, November 7.—MORNING, 10 to 1.

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SURGERY.

*Examiners*, Mr. BACOT and Sir STEPHEN HAMMICK.

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1. How do you distinguish a carbuncle from any other inflammatory tumour? Give the most common situation in which it is found; the general constitution and age of persons subject to this disease; the symptoms and treatment, both local and general, of an extensive carbuncle, in its different stages; enumerating such circumstances as would lead you to prognosticate a favourable or fatal issue.

2. Give the treatment, both local and general, of a simple fracture of the thigh-bone of a strong muscular man, at its upper third, the middle third, and the lower third, from the time of the accident to its final cure.

3. What are the injuries and diseased states of a testicle which require its removal? Describe the operation of castration, with the subsequent treatment of the patient.

4. Detail minutely the method of amputating the upper arm near the shoulder-joint, and the fore-arm near the wrist, with the management of the stumps till they are healed.

*TUESDAY, November 7.—AFTERNOON, 3 to 6.*

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MEDICINE.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

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1. Describe the anatomical characters of arachnitis. What are its symptoms?
2. Explain bronchial or tubular, cavernous, and amphoric respiration, mentioning the pathological conditions on which they respectively depend.
3. In what diseases do ulcerations of the alimentary canal chiefly occur? Mention the symptoms by which these lesions may be recognized. What circumstances would lead you to infer that intestinal perforation had taken place?
4. Sketch the treatment of measles, including that adapted to the mild as well as to the more severe forms.
5. Describe the principal morbid alterations of structure to which the spleen is liable.
6. To what order in the classification of cutaneous diseases does Acne belong? Mention its diagnostic characters and varieties.

WEDNESDAY, November 8.—MORNING, 10 to 1.

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MIDWIFERY.

*Examiner, Dr. RIGBY.*

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1. Enumerate the various conditions, diseases, &c. which are capable of simulating pregnancy, and state how they are to be distinguished from it.
2. Enumerate the unfavourable circumstances which may result from constipation, and otherwise deranged bowels, at the beginning of labour.
3. In a lingering labour, where it is ascertained that the pelvis is well-formed, what are the circumstances which will justify your waiting and trusting to nature, and the contrary?
4. In a lingering labour, as above alluded to, what means should be adopted to hasten its course before using artificial assistance?
5. What are the symptoms, causes and treatment of Encysted Placenta?
6. Under what forms does the Asphyxia of new-born children appear, and what are the modes of treatment?



WEDNESDAY, November 8.—AFTERNOON, 3 to 6.

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## FORENSIC MEDICINE.

*Examiners,* Prof. DANIELL, Dr. PEREIRA and Dr. RIGBY.

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1. What are the characters by which you would distinguish spots of blood upon iron from common rust, and what is the principal ambiguity to be guarded against?

2. Under what circumstances may lead be acted upon by water, and how would you detect its presence?

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1. What are the symptoms and chemical evidence of poisoning by nux vomica?

2. The death of an infant is suspected to have been caused by an overdose of laudanum administered medicinally. You are required to state the smallest dose of this liquid which in your opinion might produce death; to describe the symptoms which would arise; and, lastly, to state how you would proceed chemically to detect opium in the untaken portion of the medicine.

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Three women are brought before you, in whose cases you are required to give your opinion as to the presence or absence of Pregnancy on the following data:—

No. 1 is a single woman. No. 2 is married, and the mother of three children. No. 3 is married and has had six children, the youngest of them is six years old.

No. 1 denies that sexual intercourse has ever taken place. The last appearance of the menses was on the 1st of last September, and then very sparing; the areola is dark, (she is a

brunette, and is subject to irregular menstruation with much pain,) there is no perceptible abdominal enlargement; the os uteri is easily reached; it is round and seems closed, and its lips tumid and soft; the cervix is also soft, and of the full size and length.

No. 2 states that her husband, a sailor, left home on the 8th of last May; the last appearance of the menses was on the 22nd of May. There is a decided enlargement of the abdomen, the tumour reaching nearly up to the umbilicus. She denies that she has felt any movements like those of a child, nor have you satisfactorily detected any with your own hand. The os uteri is high up in the hollow of the sacrum; it is soft, round, and does not admit the tip of the finger; the cervix is shortened, the uterus above it feels enlarged, and a moveable tumour within it is indistinctly felt. There is an areola, but she is of a dark complexion, and her youngest child is only a year old.

No. 3 reckons from the last appearance of the catamenia, viz. March 8; it was scanty, and there has been a slight show twice since. The abdomen is as large as in a woman at about the eighth month of pregnancy; it is firm to the feel; the breasts present no satisfactory proofs of an areola (owing to the discoloration from former pregnancies); the os uteri is in the middle of the pelvis forming a transverse fissure; the cervix is long and firm; a solid and somewhat moveable body, of about the size of a child's head, is felt in the upper part of the pelvis. She states that she quickened in July, since which she has felt the movements of the child, which however you have not as yet succeeded in feeling with your own hand.

If you consider any of these three women to be pregnant, state the period of pregnancy; if not pregnant, what is the nature of the case? State also the grounds on which you have formed your opinion in each.



## EXAMINATION FOR HONOURS



TUESDAY, November 21.

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PHYSIOLOGY AND COMPARATIVE ANATOMY.

*Examiner*, Prof. T. RYMER JONES.

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MORNING, 10 to 1.

1. What peculiarities of structure characterize the brain of a Mammiferous animal?
2. In what respects does the Marsupial Fœtus differ from that of a Placental Mammal?
3. Describe the process of Digestion in the Human Stomach.
4. Contrast the generative apparatus of the Osseous and Cartilaginous Fishes.

AFTERNOON, 3 to 6.

1. Describe the structure of the compound eye of an Insect.
2. What are the principal physiological differences between *bone* and *shell*?
3. Describe the circulatory and respiratory apparatus of a Conchiferous Mollusk.
4. What peculiarities are most remarkable in the construction of the discerning organs of Insects?

*WEDNESDAY, November 22.*

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SURGERY.

*Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.*

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*MORNING, 10 to 1.*

1. Describe the various injuries to which the Thorax and its contents are liable from external violence; giving first, wounds of the integuments and muscles only; secondly, such as penetrate the cavity, without mischief to any of the contained viscera; and lastly, those by which the lungs or other viscus are injured, with the symptoms and treatment of each class respectively; and the details of any cases which may have fallen under your observation.

2. What are Aneurisms, and their classifications? Give their names, situation, mode of formation, appearances and symptoms, and how they are to be known; dividing them into such as are capable of being operated on, and such as do not require it, or are beyond the reach of art, either from their too advanced state of disease or situation.



*AFTERNOON, 3 to 6.*

1. Give the treatment of a Compound Fracture of the Leg, under the following conditions : where the bone has protruded ; where the tibia is still protruding ; where it is much shattered ; where there is considerable hæmorrhage ; where there is an extensive laceration of the muscles, with contusion of the surrounding parts : you will enter fully into the management, both local and general, of Fractures of the Leg, according to the above classification, saying, where you think the limb might be saved, and where not ; with your reasons for such opinion ; illustrating your observations, by the recital of any cases which you may have seen.

2. Enumerate the diseases for which the operation of Paracentesis Thoracis is employed ; give the method of performing that operation ; the after-treatment of the patient with its chance of success ; and in those cases which terminate fatally, describe the condition in which you expect to find the thorax and its contents, according to the disease for which you have operated.

THURSDAY, November 23.

---

MEDICINE.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

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MORNING, 10 to 1.

1. Describe the different forms of Carcinoma. Sketch briefly 1. the arguments which lead to the inference that this lesion is a product of diseased blood: 2. those which have been adduced in support of its local origin.

2. Enumerate the varieties of Diabetes, and the circumstances by which each is characterized. Describe the symptoms of saccharine diabetes, including an account of the changes that take place in the urine and in the blood. Explain the principles on which the treatment should be conducted, and the measures remedial and dietetic applicable to this form of the disease.

3. How is cerebral congestion distinguished from the cerebral symptoms which occasionally accompany anæmia, produced by exhaustion from undue loss of blood, protracted lactation, or other debilitating causes? What treatment is advisable under the latter circumstances?

AFTERNOON, 3 to 6.

1. Give an outline of the pathology or nature of Epilepsy. State the principles of treatment, and how they are to be fulfilled.

2. What are the symptoms from which invagination of the intestine may be inferred? Describe the anatomical characters of this lesion, and explain in what manner a natural cure of intus-susception is occasionally accomplished.

3. Describe the anatomical characters of cerebral softening. What are its diagnostic signs?

FRIDAY, November 24.—MORNING, 10 to 1.

---

MIDWIFERY.

*Examiner, Dr. RIGBY.*

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1. What part of the child in natural labour is most liable to produce severe lacerations of the perineum? Describe the different forms of perineal laceration, and their treatment.
2. What are the points of difference, at the end of pregnancy, between the os and cervix uteri in a primipara and in a multipara?
3. What are the indications for perforating the head? Describe the operation and rules for performing it.
4. In Hæmorrhage from Inertia uteri, after labour at the full term, and where the placenta is not yet expelled, what would be your treatment?
5. What are the facts shown by a vaginal examination where the placenta is situated upon the os uteri?
6. Enumerate briefly the points of diagnosis between fleshy tubercle of the uterus, ovarian dropsy, and pregnancy.

FRIDAY, November 24.—AFTERNOON, 3 to 6.

---

STRUCTURAL AND PHYSIOLOGICAL  
BOTANY.

Examiner, Rev. Prof. HENSLOW.

---

1. Define the terms Papilionaceous, Labiate, Personate. State an example of each form.

2. Distinguish between the Endocarp, Epicarp, and Sarcocarp of fruits. State an example in which they may be readily, and another, in which they cannot easily be distinguished in the same fruit.

3. What is the ordinary structure of the flower and fruit of Umbelliferæ; and what may be considered their normal character?

4. Describe the peculiar exhibition of Vegetable irritability noticeable in the *Dionæa muscipula*.

5. What office does Ammonia perform in the nutrition of plants, and from what sources may we suppose they obtain it?

6. Explain the structure and presumed functions of the Medullary rays; and mention the description of plants to which their presence is limited.

7. 8. 9. 10. Describe these specimens.

## CANDIDATES.

The following is a list of the Candidates who passed the SECOND EXAMINATION, and consequently received the Degree of BACHELOR OF MEDICINE.

*The names are arranged alphabetically.*

*First Division.*

|                                | Medical Schools.                    |
|--------------------------------|-------------------------------------|
| BALLARD, EDWARD .....          | University College.                 |
| BARNES, ROBERT ....            | Adj <sup>s</sup> St. George's Hosp. |
| BARNETT, ADOLPHUS .....        | London Hospital.                    |
| BROWNE, JOSEPH HULLETT.....    | Guy's Hospital.                     |
| DAVIES, JOHN JONES .....       | London Hospital.                    |
| FEARNSIDE, HENRY .....         | University College.                 |
| HEATH, GEORGE YEOMAN .....     | University College.                 |
| HUMBLE, WILLIAM EDWARD .....   | University College.                 |
| LEONARD, THOMAS .....          | University College.                 |
| MANSON, FREDERICKE ROBERT .... | King's College.                     |
| REES, GEORGE AUGUSTUS .....    | St. Bartholomew's Hospital.         |
| RUBIDGE, RICHARD NATHANIEL.... | Guy's Hospital.                     |
| SPITTA, ROBERT JOHN.....       | St. George's Hospital.              |
| STEDMAN, SILAS STILWELL.....   | University College.                 |
| TAPSON, ALFRED JOSEPH.....     | University College.                 |
| TOPHAM, JOHN .....             | University College.                 |
| WARD, STEPHEN HENRY .....      | London Hospital.                    |

*Second Division.*

|                                |                       |
|--------------------------------|-----------------------|
| BELL, HUGH .....               | Guy's Hospital.       |
| FRANCIS, CHARLES RICHARD ..... | Middlesex Hospital.   |
| JONES, THOMAS LLOYD.....       | University College.   |
| SNOW, JOHN .....               | Westminster Hospital. |



## EXAMINATION FOR HONOURS.

*The names are arranged in the order of proficiency.*

## PHYSIOLOGY AND COMPARATIVE ANATOMY.

|                                                              | Medical Schools.    |
|--------------------------------------------------------------|---------------------|
| BALLARD, EDWARD. . ( <i>Scholarship &amp; Gold Medal</i> ).. | University College. |
| BROWNE, JOSEPH HULLETT . . ( <i>Gold Medal</i> ) . .         | Guy's Hospital.     |
| MANSON, FREDERICKE ROBERT . . . . .                          | King's College.     |
| { RUBIDGE, RICHARD NATHANIEL. . . . .                        | Guy's Hospital.     |
| { FEARNSIDE, HENRY . . . . .                                 | University College. |
| DAVIES, JOHN JONES . . . . .                                 | London Hospital.    |

## SURGERY.

|                                                             |                     |
|-------------------------------------------------------------|---------------------|
| TOPHAM, JOHN. . ( <i>Scholarship &amp; Gold Medal</i> ) . . | University College. |
| { BROWNE, JOSEPH HULLETT. . ( <i>Gold Medal</i> ) . .       | Guy's Hospital.     |
| { STEDMAN, SILAS STILWELL. . ( <i>Gold Medal</i> ) . .      | University College. |
| DAVIES, JOHN JONES . . . . .                                | London Hospital.    |
| HEATH, GEORGE YEOMAN . . . . .                              | University College. |
| RUBIDGE, RICHARD NATHANIEL. . . . .                         | Guy's Hospital.     |

## MEDICINE.

|                                                              |                     |
|--------------------------------------------------------------|---------------------|
| BALLARD, EDWARD. . ( <i>Scholarship &amp; Gold Medal</i> ).. | University College. |
| FEARNSIDE, HENRY . . . . . ( <i>Gold Medal</i> ). . . . .    | University College. |
| BROWNE, JOSEPH HULLETT. . . . .                              | Guy's Hospital.     |
| MANSON, FREDERICKE ROBERT . . . . .                          | King's College.     |
| RUBIDGE, RICHARD NATHANIEL. . . . .                          | Guy's Hospital.     |

## MIDWIFERY.

|                                |                     |
|--------------------------------|---------------------|
| TAPSON, ALFRED JOSEPH. . . . . | University College. |
| BALLARD, EDWARD . . . . .      | University College. |

UNIVERSITY OF LONDON.

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EXAMINATION

FOR THE DEGREE OF

DOCTOR OF MEDICINE

IN THE YEAR 1843.

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LONDON:

SOLD BY RICHARD AND JOHN E. TAYLOR,

*PRINTERS TO THE UNIVERSITY OF LONDON,*

RED LION COURT, FLEET STREET.

1843.



EXAMINERS.

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*Elements of Intellectual Philosophy, Logic, and  
Moral Philosophy.*

REV. HENRY ALFORD, M.A.

THOMAS B. BURCHAM, Esq., M.A.

*Surgery.*

JOHN BACOT, Esq.

SIR STEPHEN LOVE HAMMICK, Bart.

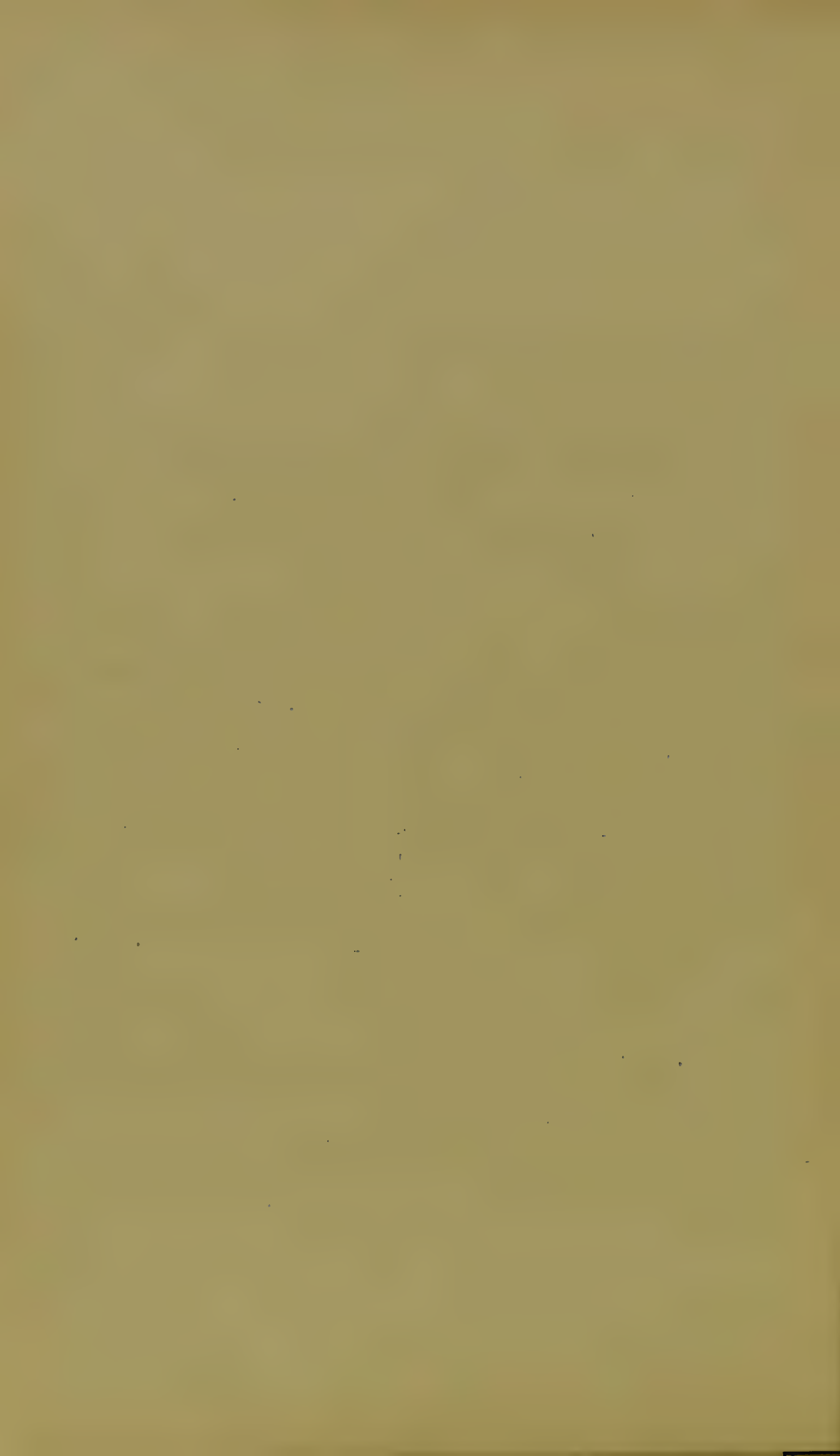
*Medicine.*

ARCHIBALD BILLING, M.D.

ALEXANDER TWEEDIE, M.D., F.R.S.

*Midwifery.*

EDWARD RIGBY, M.D.





# PASS EXAMINATION.

MONDAY, November 27.—MORNING, 10 to 1.

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## ELEMENTS OF INTELLECTUAL PHILOSOPHY, LOGIC, AND MORAL PHILOSOPHY\*.

*Examiners*, Rev. H. ALFORD and Mr. BURCHAM.

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1. GIVE an account of the sensualist and idealist philosophies.
2. Criticise generally the Essay concerning Human Understanding; its method, objects, arrangement, and style.
3. In what sense does Locke use the word 'Understanding'? What other senses have been given to it?
4. What are Cousin's remarks on Locke's procedure in examining the origin of our ideas? State your own opinion on the proper order of our inquiries concerning Human Understanding.
5. Translate the following passage, and accompany it with a brief statement of Cousin's arguments, of which it is a summary :

Locke a éprouvé son système sur un certain nombre d'idées particulières, savoir : l'idée de l'espace, l'idée de l'infini, l'idée

\* The following Works have been selected for the Examination in Logic, Moral, and Intellectual Philosophy, for the Degree of DOCTOR OF MEDICINE in the year 1844 :

*Logic*.—Bacon's *Novum Organum*, Part I.

*Philosophy of the Mind*.—Cousin's Analysis of Locke's Essay (being the 3rd volume of his *Cours de Philosophie*).

*Moral Philosophy*.—Butler's *Analogy*, Part I. Stewart's *Outlines of Moral Philosophy*.

du temps, l'idée de l'identité personnelle, l'idée de la substance, l'idée de la cause, l'idée du bien et du mal, s'imposant la loi d'expliquer toutes ces idées par la sensation et par la réflexion. Nous avons suivi Locke sur tous ces points qu'il a lui-même choisis ; et, sur tous ces points, un examen attentif nous a démontré qu'on ne peut expliquer aucune de ces idées par la sensation ou par la réflexion, qu'à la condition de méconnaître entièrement les caractères réels dont ces idées sont aujourd'hui marquées dans l'entendement de tous les hommes.

6. Give the substance of Cousin's remarks on nominalism and realism : and examine critically the assertion of Locke and his school, that the greater part of our disputes are disputes about *words*.

7. In what instances have the followers of Locke perpetuated or advanced his errors ? in what have they corrected them ?

8. Give a brief account of the purpose and proposed contents of the ' *Novum Organum*.' What place are you disposed to assign to Bacon in the history of philosophy ?

9. "As the sciences now in being are useless in the discovery of works, so is the present logic in the discovery of the sciences."—*Aphor.* 11.

Of what sciences and what logic is this said, and with what justice ?

10. Enumerate the classes of prejudices or idols described by Bacon, and give instances of them.

11. How do you answer the argument against a future state which is founded on the presumption that death is the destruction of living beings ?

12. Show that a kind of moral government is implied in God's natural government. In what sense may the notion of a moral scheme of government be said to be natural ?

13. Distinguish between instinctive and deliberate resentment. What is the final cause of the former ?

14. What idea, according to Hume, have we of cause and effect ? What are the objections made by him to the *a posteriori* argument for the existence of a Deity ?

MONDAY, November 27.—AFTERNOON, 3 to 6.

---

COMMENTARY ON A CASE IN MEDICINE.  
CELSUS DE RE MEDICA.

*Examiners*, Dr. BILLING and Dr. TWEEDIE.

---

CASE.

A married woman, twenty-five years of age, came under observation on the 8th of June, and gave the following account of her illness. About six months previously she felt pain in the cardiac region and vertigo, followed by loss of power in the left side of the body and loss of speech. On the following day she became insensible and remained so for about a week, but after the adoption of energetic treatment, recovered her consciousness and the power of the left side of the face, but the command over the left upper and lower extremity was much impaired. She was in this state when she applied for advice on the 8th of June, and continued without perceptible change for four weeks, when the pain in the cardiac region increased, accompanied with strong impulse of the heart, and a rough rolling murmur with the first sound. The measures pursued had the effect of diminishing the impulse of the heart so much that she unadvisedly went abroad, and exposed herself to cold. When visited a few days afterwards she exhibited the following symptoms:—the breathing was laborious, the lips livid; there was however so much consciousness that she recognised persons around her, but her articulation was indistinct and her voice feeble; the pulse became scarcely perceptible, the extremities cold, and she died in the evening.

What was the nature of her disease? What treatment would you have suggested? What appearances would you have expected to find on examination of the body after death?

## CELSUS.

Protinùs autem inter initia scire facile est, quis acutus morbus, quis longus sit; non in his solùm in quibus semper ità se habet, sed in his quoque in quibus variat. Nam ubi sine intermissionibus accessiones et dolores graves urgent, acutus morbus est: ubi lenti dolores lentæve febres sunt, et spatia inter accessiones porriguntur, acceduntque ea signa quæ in superiore volumine exposita sunt, longum hunc futurum esse manifestum est. Videndum etiam est, morbus an increseat, an consistat, an minuatur; quia quædam remedia increscen-  
 tibus morbis, plura inclinatis conveniunt: eaque quæ decrescentibus apta sunt, ubi acutus increscens urget, in remissionibus potiùs experienda sunt. Increscit autem morbus, dùm graviores dolores accessionesque veniunt, hæque et ante, quam proximæ, revertuntur, et postea desinunt. Atque in longis quoque morbis etiam tales notas non habentibus, scire licet, increscere, si somnus incertus est, si deterior concoctio, si fædiore dejectiones, si tardior sensus, si pigrior mens, si percurrit corpus frigus aut calor, si id magis pallet. Ea verò quæ contraria his sunt, decedentis ejus notæ sunt. Præter hæc in acutis morbis seriùs æger alendus est, nec nisi jam inclinatis; ut primò dempta materia impetum frangat: in longis maturiùs, ut sustinere spatium affecturi mali possit. Ac si quandò id non in toto corpore, sed in parte est, magis tamen ad rem pertinet vim totius corporis moliri, quàm per eam partes ægræ sanentur. Multùm etiam interest, ab initio quis rectè curatus sit, an perperàm; quia curatio minùs his prodest, in quibus assiduè frustrà fuit. Si quis temerè habitus, adhuc integris viribus vivit, admotâ curatione, momento restituitur. Sed quùm ab his cœperim, quæ notas quasdam futuræ adversæ valetudinis exhibent, curationum quoque principium ab animadversione ejusdem temporis faciam. Igitur si quid ex his quæ proposita sunt, incidit, omnium optima sunt quies et abstinentia; si quid bibendum, aqua: idque interdùm uno die fieri satis est; interdùm, si terrentia manent biduo: proximèque abstinentiam sumendus est cibus exiguus,



bibenda aqua, postero die etiam vinum, deindè in vicem alter-  
 nis diebus, modò aqua, modò vinum, donec omnis causa metûs  
 finiatur. Per hæc enim sæpè instans gravis morbus discuti-  
 tur. Plurimique falluntur, dùm se primo die protinûs subla-  
 turos languorem, aut exercitatione, aut balneo, aut coactâ de-  
 jectione, aut vomitu, aut sudationibus, aut vino sperant: non  
 quod non interdùm id incidat, aut non decipiat, sed quod  
 sæpiûs fallat, solâque abstinentiâ sine ullo periculo medeatur:  
 quùm præsertim etiam pro modo terroris moderari liceat; et,  
 si leviora indicia fuerunt, satis sit à vino tantùm abstinere,  
 quod subtractum plus quàm si cibo quid dematur, adjuvat:  
 si paulò graviora, facile sit non aquam tantùm bibere, sed  
 etiam cibo carnem subtrahere: interdùm panis quoque minûs  
 quàm pro consuetudine assumere, humidoque cibo esse con-  
 tentum, et olere potissimùm: satisque sit tum ex toto à cibo,  
 à vino, ab omni motu corporis abstinere, quùm vehementes  
 notæ terruerunt. Neque dubium est quin vix quisquam, qui  
 non dissimulavit, sed per hæc maturè morbo occurrit, ægrotet.  
 —*Celsus, Lib. III. cap. ii.*



*TUESDAY, November 28.*

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MEDICINE.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

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*MORNING, 10 to 1.*

1. Describe the forms of Hypertrophy of the Heart. Give the symptoms, local and general, of each. What are the pathological effects of hypertrophy of the left ventricle?
2. Sketch the diagnostic symptoms and treatment of Inflammation of the Duodenum.
3. Detail the symptoms, varieties, and treatment of Iritis.
4. Describe the diagnostic characters and forms of Purpura, with the appropriate treatment of each.

*AFTERNOON, 3 to 6.*

1. When there is complete absence of the respiratory murmur over the whole of one side of the thorax, what inferences are to be drawn as to its pathological causes?
2. Detail the symptoms of Scarlet Fever, including a description of its several forms, and the treatment applicable to each.
3. Mention the sources from which the blood may issue in Hemoptysis.
4. Enumerate the varieties of Colic. Explain the causes, pathology, and appropriate treatment of each.

*FRIDAY, December 1, at 10 A.M.*

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EXAMINATION ON THE ANSWERS TO THE  
PRINTED PAPERS, AND ON THE COMMEN-  
TARIES.

By Vivâ Voce Interrogation.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

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# EXAMINATION FOR HONOURS.

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*TUESDAY, December 5.*

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## SURGERY.

*Examiners, Mr. BACOT and Sir STEPHEN HAMMICK.*

---

*MORNING, 10 to 1.*

How do you know when a caries of the cervical, dorsal, or lumbar vertebræ is threatened? Give the symptoms and treatment of the different stages respectively by which the disease generally proceeds, when it goes on to its utmost limit, short of death, whether it has arisen from accident or a constitutional cause: give the symptoms, appearances, and management of the various curvatures of the spine, up to a favourable or fatal issue: detail the symptoms, by which you detect the existence of a psoas and a lumbar abscess: point out the diseases with which they are occasionally confounded, from their earliest to their more advanced stages; giving the various modes of treatment which have been from time to time recommended; saying which you would prefer, with your reasons for such preference; and where the case terminates fatally, either from caries, curvature, or abscess, you will write down the state in which you expect to find the bony and soft parts, by a post-mortem examination.

*AFTERNOON, 3 to 6.*

If called to a person about the middle age, and apparently hitherto in good health, who has been found lying in the street in a state of total insensibility, how would you detect, whether that unconsciousness has arisen, from a concussion of the brain; an extravasation of blood within the head, from violence or natural causes; a fracture of the skull; apoplexy; epilepsy; drunkenness; or poison? Detail the symptoms of each of the above states respectively, and where you think the application of the trephine is necessary, you will give the method of performing that operation; contrasting the practice of the present day, in the treatment of capillary, simple and compound fractures of the skull, with that pursued by Mr. Pott and the best surgeons of his time, with your opinion of the superiority of one over the other.



*WEDNESDAY, December 6.*

---

MEDICINE.

*Examiners, Dr. BILLING and Dr. TWEEDIE.*

---

*MORNING, 10 to 1.*

1. Sketch the characteristic symptoms of Asthma, including a description of its forms and complications. Mention the opinions entertained of its pathology or nature ; and give an outline of the treatment applicable to each variety of the disease.

2. Explain the principles on which the treatment of Dropsy should be conducted.

*AFTERNOON, 3 to 6.*

1. Describe the various forms of Paralysis, connecting each with its pathological cause ; sketch the indications to be kept in view in the treatment.

2. Give an outline of the treatment of continued fever, including, 1. the circumstances that require the employment of blood-letting, general or local ; 2. those which render it inexpedient ; 3. the indications for the exhibition of wine and other stimulants, with the rules to be observed in their administration.

THURSDAY, December 7.

---

MIDWIFERY.

*Examiner, Dr. RIGBY.*

---

MORNING, 10 to 1.

1. Describe exactly the manner in which the head presents and passes through the pelvis and external parts during labour, in the most usual form of cranial presentation.
2. Describe the different modes of treatment which have been adopted in ovarian Dropsy, and their degree of success.

AFTERNOON, 3 to 6.

1. Describe the different varieties of deformed pelvis, and the causes of them.
2. Enumerate the various ways by which the child can render labour difficult or dangerous by its own faulty conformation.

## CANDIDATES.

---

The following Candidates passed the Examinations, and have consequently been admitted to the Degree of DOCTOR OF MEDICINE.

### *First Division.*

#### Medical Schools.

- \*GARROD, ALFRED BARING. . . . . University College.  
†HEATON, JOHN DEAKIN. . . . . University College.  
SMITH, EDWARD . . . . . Queen's College, Birmingham.  
WAY, WILLIAM . . . . . University College.

\* A Certificate of Special Proficiency in Medicine was awarded to Dr. Garrod.

† A Certificate of Special Proficiency in Medicine and a Gold Medal for a Commentary on a Case in Medicine were awarded to Dr. Heaton.

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## EXAMINATION FOR HONOURS.

### MEDICINE.

- GARROD, ALFRED BARING. . (*Gold Medal*). . . University College.  
HEATON, JOHN DEAKIN. . . . . University College.

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